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SMITHSONIAN INSTITUTION ASTROPHYSICAL OBSERVATORY

Research in Space Science SPECIAL REPORT NO. 43

CATALOGUE OF SATELLITE OBSERVATIONS
No. C-13

May 25, 1960 Cambridge 38, Massachusetts

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CATALOGUE OF SATELLITE OBSERVATIONS, No. C-13

Prepared by D. V. Mechau¹

INTRODUCTION

This report lists observations of Satellite 1958 Epsilon for the period from September 1, 1959 until its demise on October 22, 1959; and of Satellites 1959 a1 and 1959 a2 for the period from July 1 through December 31, 1959.

Minitrack and Doppler data received by SAO for these months are not included. The observations listed include those from the Smithsonian Baker-Nunn camera stations, Moonwatch teams, U. S. and foreign observatories, military installations, Phototrack stations, and miscellaneous observers. A number of observations have been received from Project Space Track of the Air Force Cambridge Research Center, under an arrangement involving an exchange of observations of artificial earth satellites.

Units

The date given lists the month and day of the observation; the time (U.T.) is given in hours, minutes, and seconds; right ascension is in hours, minutes, and seconds; declination, azimuth, and altitude are in degrees, minutes, and seconds; azimuth is measured from north through east; the range is in meters.

An explanation of the index code appears in Special Report No. 23², which includes indices for time precision, position precision, coordinate system and refraction correction, equator and equinox of reference, and type of instrumentation.

Administrative Assistant, Computations Division, Smithsonian Astrophysical Observatory.

² Copies of the explanation are available upon request.

1958 EPSILON

OBSERVATIONS FROM 1 SEPT. THROUGH 22 OCT. 1959. THE DEMISE OF 1958 EPSILON OCCURRED APPROXIMATELY 22 OCT. 1959.

| OBS NO STATION OD697 ORGAN PASS-BN. N.M. OD696 ORGAN PASS-BN. N.M. DD698 ALBUQUERQUE, N.M. | 9001 9 9001 9 | 01 3 | | R. A. 13 08 00 10 47 30 | DECL. 65 52 82 38 | 0 00 | ALTITUDE RANGE | 1NDEX 434013 434013 845301 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------|-------------------------|------------------------------------------------------------------------------|
| 00791 BRATISLAVA, CZECH, 00699 SAN FERNANDO-BN, SP. 00700 SAN FERNANDO-BN, SP. 00792 BRATISLAVA, CZECH, 00793 BRATISLAVA, CZECH, | 9004 9 9004 9 8126 9 | 02 20 02 20 02 21 | 54 32.90 54 55.70 00 51.3 | 19 17 36 12 40 00 12 17 12 20 41 30 21 28 18 | 32 54 61 17 67 52 66 48 66 48 | | | 834009 434013 434013 834009 834009 |
| 00733 BRNO, CZECH. 00734 BRNO. CZECH. 00735 BRNO. CZECH. 00735 BRNO. CZECH. 00707 HANOVER. GER. 00708 HANOVER. GER. 00794 BRATISLAVA. CZECH. 00701 SAN FERNANDO-BN. SP. | 2720 9 2720 9 2720 9 8069 9 8070 9 8126 9 9004 9 | 03 19 03 19 03 19 03 20 03 20 03 20 03 20 | 10 18.0 10 22.1 10 31.1 50 14.3 50 25.2 51 22.0 | 16 54 18 17 00 48 17 05 48 17 18 00 20 11 24 20 40 54 19 17 00 10 49 36 9 51 36 | 13 12 14 24 15 12 17 12 31 56 31 17 66 00 69 24 71 47 | | | 834009 834009 834009 834009 845001 845001 834009 434013 |
| 00731 HORSEBRIDGE, ENG- 00732 HORSEBRIDGE, ENG- 00732 HORSEBRIDGE, ENG- 00736 BRATISLAVA, CZECH- 00736 BRATISLAVA, CZECH- 00737 BRATISLAVA, CZECH- | 3657 9 8126 9 8126 9 | 04 20 04 20 04 20 | 35 27 40 41 40 51.5 41 09.6 42 01.0 | 15 43 0 11 18 35 00 19 21 00 21 48 00 | 8 54 25 54 65 00 65 36 66 36 | | | 845002 845002 834009 834009 834009 |
| 00706 SACRAMENTO, CAL. | 8517 9 | 06 4 | 21 57.2 | | | 0 00 | 23 29 | 641301 |
| 00781 SACRAMENTO: CAL: 00709 SACRAMENTO: CAL: 00828 SPOKANE: WASH: | 8517 9 | 07 4 | 20 54.6 08 47.1 11 38.5 | | | 0 00 0 00 0 00 | 18 14 22 10 65 48 | 641301 641301 845309 |
| 00780 BARTLESVILLE, OKLA- 00703 SACRAMENTO, CAL- | | | 09 23 54 29•8 | | | 0 00 | 39 00 21 06 | 845301 641301 |
| 00705 WALNUT CREEK. CAL. 00704 SACRAMENTO. CAL. | 8556 9 | 08 5 | 33 58 • 7 34 02 • 0 | 8 20 00 | 75 36 | 0 00 | 25 22 | 845001 641301 |
| 00773 WALNUT CREEK. CAL. | 8556 9 | | 34 04.6 | 8 08 00 | 75 51 | | | 845001 |
| 00740 ROCHESTER, N.Y. 00711 SACRAMENTO, CAL. 00710 SAN JOSE, CAL. | 8517 9 | 09 3 | 47 04.6 39 04.6 48 54.4 | 7 21 | 81 42 | 0 00 | 20 11 17 52 12 | 845001 641301 845301 |
| 00712 SACRAMENTO, CAL. 00774 WALNUT CREEK, CAL. | | | 22 27.4 | 8 07 00 | 76 09 | 0 00 | 19 31 | 641301 845001 |
| 00713 SACRAMENTO. CAL. 00798 BRATISLAVA. CZECH. | 8517 9 | 10 5 | 01 49•2 14 45•0 | 19 38 18 | 60 24 | 0 00 | 25 58 | 641301 834009 |
| 00715 SAN FERNANDO-EN, SP. 00716 SAN FERNANDO-BN, SP. | 9004 9 | 10 20 | 47 27.90 48 02.40 | 6 07 48 | 71 19 67 19 | | | 434013 |
| 00717 SAN FERNANDO-BN. SP. | | | 48 36.80 | 3 45 30 | 61 30 | | | 434013 |
| 00714 WALNUT CREEK, CAL. 00737 SACRAMENTO, CAL. | | | 43 57.2 43 58.8 | 7 50 00 | 76 00 | 0 00 | 26 07 | 641001 641301 |
| 00730 ROCHESTER. N.Y. | 8564 9 | 12 1 | 14 52.1 | 4 44 | 88 26 | | | 845001 |
| 00729 ROCHESTER. N.Y. 00728 SAN JOSE. CAL. | 0134 9 | 9 13 4 | 54 52.5 05 33.7 | 6 30 | 88 00 | 0 00 | 23 00 | 845002 845301 845301 |
| 00777 KANSAS CITY MO. | | | 11 57 | | | 0 | 31 30 | |
| 00766 HIGASHIMATSUYAMA, JA | | | 31 50 | 18 05 | 40 | | | 845001 |
| 00778 ALBUQUERQUE, N.M. 00741 SAN FERNANDO-BN, SP. 00742 SAN FERNANDO-BN, SP. 00743 SAN FERNANDO-BN, SP. | 9004 9 | 9 16 20 9 16 20 | 00 10.5 19 03.60 19 22.90 19 42.10 | 21 08 00 22 06 00 22 35 48 | 74 14 65 50 56 36 | 0 | 30 06 | 845302 434013 434013 434013 |
| 00744 ORGAN PASS-BN. N.M. | | | 37 27.6n | 1 27 48 | 55 45 | | | 434013 |
| 00745 ORGAN PASS-BN. N.M. 00746 ORGAN PASS-BN. N.M. | 9001 | 9 17 2 | 37 33.60 38 00.00 | 1 24 12 | 54 17 46 59 | | | 434013 |
| 00747 SAN FERNANDO-BN. SP 00748 SAN FERNANDO-BN. SP | • 9004 9 | 9 17 19 | 53 44.60 | 22 44 12 22 47 00 | 52 47 50 49 | | | 434013 |
| 00749 SAN FERNANDO-BN. SP | | | 53 48.60 | 22 49 24 | 48 57 | | | 434013 |
| 00752 TOKYO-BN, JAPAN 00753 TOKYO-BN, JAPAN 00754 TOKYO-BN, JAPAN | 9005 | 9 18 10 | 01 17.80 | 22 11 36 22 24 48 | 67 26 62 08 41 16 | | | 434013 |
| 00755 SAN FERNANDO-BN. SP | • 9004 | 9 18 19 | 26 02 • 50 | 22 53 30 22 43 06 | 58 59 | | | 434013 |
| 00756 SAN FERNANDO-BN. SP | | | 26 04•90 26 07•30 | 22 44 12 22 45 18 | 57 48 56 33 | | | 434013 |
| 00750 DALLAS, TEXAS 00782 ALBUQUERQUE, N.M. | | | 43 55.5 3 20 55 | 23 00 30 | 60 06 | 270 | 26 42 | 845001 845302 |
| 00767 TOKYO-BN. JAPAN 00768 TOKYO-BN. JAPAN | 9005 | 919 9 | 33 31.80 | 22 48 48 22 51 18 | 53 04 50 47 | 2.0 | | 434013 434013 |
| 00769 TOKYO-BN. JAPAN 00758 SAN FERNANDO-BN. SP | 9005 | 9 19 9 | 33 41.40 | 22 50 00 16 58 42 | 48 26 | | | 434013 434013 |
| 00759 SAN FERNANDO-BN. SP 00760 SAN FERNANDO-BN. SP | • 9004 | 9 19 20 | 34 59.50 35 04.30 | 17 04 48 17 11 00 | - 3 29 - 4 35 | | | 434013 434013 |
| 00760 SAN FERNANDU-BN. SP | | | 1 14 58 | 18 21 30 | 20 48 | | | 845001 |
| 00771 51. LOUIS. MO. 00770 TOKYO-RN. JAPAN 00771 TOKYO-BN. JAPAN | 9005 | 9 20 10 | 0 40 48.30 0 41 03.00 | | 3 55 0 45 | | | 434013 434013 |
| | | | | | | | | |

| 085 NO | STATION | STA NO | DATE | TIME | R. A. | DECL. | AZ IMUTH | ALTITUDE | RANGE INDEX |
|---------|----------------------|--------|-------|-------------|----------|--------|----------|----------|-------------|
| | TOKYO-BN, JAPAN | 9005 | 9 20 | 10 41 36-20 | 17 12 36 | - 6 59 | | | 434013 |
| 00761 | SAN FERNANDO-BN. SP. | 9004 | 9 20 | 20 04 55.80 | 17 14 18 | - 5 13 | | | 434013 |
| 00762 | SAN FERNANDO-BN. SP. | 9004 | 9 20 | 20 05 14.70 | 17 41 18 | - 9 55 | | | 434013 |
| | TERRE HAUTE. IND. | 8127 | 9 21 | 1 05 | 80 | 38 | | | 845001 |
| 00763 | MAUI-BN. HAWAII | 9012 | 9 21 | 5 30 32.55 | 23 58 48 | 77 46 | | | 434013 |
| 00764 | MAUI-BN. HAWAII | 9012 | 9 21 | 5 31 43.26 | 23 54 24 | 53 10 | | | 434013 |
| 00765 | MAUI-BN. HAWATI | 9012 | 9 21 | 5 32 22.52 | 23 53 54 | 41 08 | | | 434013 |
| | SACRAMENTO, CAL. | 8517 | 9 22 | 3 22 25.4 | 16 37 39 | -14 12 | | | 641011 |
| | SACRAMENTO. CAL. | 8517 | 9 22 | 3 24 43.1 | 19 13 13 | -34 55 | | | 641041 |
| | CHINA LAKE. CAL. | 0098 | 9 22 | 13 08 44.6 | | | 270 00 | 16 48 | 641302 |
| | CURACAO-BN. N.W.I. | 9009 | 9 22 | 23 51 31.97 | 21 59 36 | 66 18 | | | 434013 |
| 00785 | CURACAO-BN. N.W.I. | 9009 | 9 22 | 23 52 15.15 | 22 47 06 | 52 37 | | | 434013 |
| | CAPETOWN. S.AFR. | 0402 | 9 26 | 3 37 46.75 | | | 174 36 | 36 | 845302 |
| 00500 1 | WOOMERA-BN. AUSTR. | 9003 | 9 26 | 10 51 39.37 | 11 45 24 | -67 05 | | | 434023 |
| | AREQUIPA-BN. PERU | 9007 | 9 30 | 0 01 35.67 | 16 08 36 | -45 13 | | | 434023 |
| 00802 1 | OOMERA-BN, AUSTR. | 9003 | 9 30 | 10 59 00.00 | 17 32 30 | -62 13 | | | 434023 |
| 00803 F | PERTH. AUSTR. | 0601 | 10 01 | 11 43 06+1 | | | 171 22 | 59 00 | 641301 |
| 00804 | OOMERA-BN, AUSTR. | 9003 | 10 02 | 10 57 42.46 | 14 46 36 | -54 29 | | | 434023 |
| 00808 1 | OOMERA-BN. AUSTR. | 9003 | 10 03 | 10 03 32.34 | 14 51 36 | -53 25 | | | 434023 |
| 00610 | ALBUQUERQUE. N.M. | 0103 | 10 09 | 11 19 14 | | | 48 36 | 11 00 | 845302 |
| 00811 * | NORTH CANTON: OHIO | 8536 | 10 10 | 10 13 32 | 6 08 | 71 36 | | | 641001 |
| | CHATTANOOGA, TENN. | 0062 | 10 21 | 5 12 42 | | | 145 | 82 | 845301 |
| 00515 1 | rokkaichi. Japan | 0258 | 10 21 | 20 05 28 | 21 43 | 85 | | | 845001 |
| 00817 | ORTH CANTON, OHIO | 0053 | 10 22 | 10 47 25 | 11 37 | 5 30 | | | 845001 |

1959 ALPHA 1 OBSERVATIONS FROM 1 JULY THROUGH 31 DECEMBER 1959

| OBS NO | | CTA NO. | | | | | | | | | 054 | | A 11 144 141 1 | | | |
|--------|-----------------------------------|----------------|---|----|----|----|-------|----|------|----|-----|-----|----------------|----------|-------|-----------------|
| |) STATION OLIFANTSFNTN-BN.S.AF | 5TA NO 9002 | | ME | | TI | | | R. / | | -44 | CL. | AZ.IMUTH | ALTITUDE | KANGE | INDEX 434023 |
| | OLIFANTSFNTN-BN.S.AF | | | 01 | | | 21.04 | | 56 | | -42 | | | | | 434023 |
| | | | | 01 | | | 59.08 | | 47 | | | | | | | 434023 |
| | VILLA DOLORES-BN.ARG | | | 01 | | | | | | | -33 | | | | | |
| | AREQUIPA-BN+ PERU | 9007 | | 01 | | | 14-02 | | 14 | | -55 | | | | | 434023 |
| | WOOMERA-BN. AUSTR. | 9003 | | 01 | | | 33.62 | | 37 | | -35 | | | | | 434023 |
| 01255 | WOOMERA-BN. AUSTR. | 9003 | • | 01 | 20 | 40 | 36.06 | 1 | 13 | 00 | -26 | 42 | | | | 434023 |
| 01254 | OLIFANTSENTN-BN.S.AF | 9002 | 7 | 02 | 2 | 53 | 31.94 | 22 | 23 | 12 | -46 | 27 | | | | 434023 |
| 01255 | VILLA DOLORES-BN.ARG | 9011 | 7 | 02 | 9 | 11 | 42.48 | 23 | 05 | 06 | -34 | 18 | | | | 434023 |
| 01259 | WOOMERA-BN. AUSTR. | 9003 | 7 | 02 | 19 | 39 | 51.49 | 23 | 14 | 36 | -35 | 34 | | | | 434023 |
| | | | | | | | | | | | | | | | | |
| 01260 | VILLA DOLORES-BN.ARG | 9011 | 7 | 03 | | 07 | 21.29 | 21 | 52 | 12 | -35 | 29 | | | | 434023 |
| 01257 | WOOMERA-BN. AUSTR. | 9003 | 7 | 03 | 18 | 35 | 42.54 | 22 | 09 | 12 | -37 | 30 | | | | 434023 |
| 01258 | WOOMERA-BN+ AUSTR+ | 9003 | 7 | 03 | 20 | 54 | 49.99 | 0 | 21 | 00 | -23 | 05 | | | | 434023 |
| | | | | | | | | | | | | | | | | |
| 01256 | OLIFANTSFNIN-BN.S.AF | 9002 | 7 | 04 | 3 | 05 | 28.8 | 23 | 26 | 12 | -42 | 27 | | | | 434023 |
| 01263 | MAUI-BN, HAWAII | 9012 | 7 | 04 | 6 | 29 | 54+58 | 11 | 31 | 36 | -12 | 58 | | | | 434013 |
| 01261 | VILLA DOLORES-BN.ARG | 9011 | 7 | 04 | 9 | 22 | 25.79 | 23 | 23 | 12 | -29 | 48 | | | | 434023 |
| | | | | | | | | | | | | | | | | |
| 01265 | AREQUIPA-BN. PERU | 9007 | 7 | 05 | 6 | 15 | 36+40 | 21 | 47 | 12 | -64 | 16 | | | | 434023 |
| 01262 | VILLA DOLORES-BN.ARG | 9011 | 7 | 05 | 8 | 18 | 17.32 | 22 | 19 | 24 | -34 | 24 | | | | 434023 |
| _ | | ,. | | | | | | | | | | | | | | |
| 01272 | CURACAD-BN. N.W.I. | 9009 | 7 | 06 | 0 | 22 | 49.50 | 12 | 28 | 42 | 18 | 27 | | | | 434013 |
| 01266 | VILLA DOLORES-BN.ARG | 9011 | 7 | 06 | 7 | 18 | 23.75 | 23 | 30 | 00 | -32 | 59 | | | | 434023 |
| 01264 | AREQUIPA-BN. PERU | 9007 | 7 | 06 | | | 36+17 | | 20 | | -52 | 09 | | | | 434023 |
| | VILLA DOLORES-BN.ARG | 9011 | | 06 | | | 50-15 | | 27 | | -22 | | | | | 434013 |
| | WOOMERA-BN. AUSTR. | 9003 | | 06 | | | 31.74 | 19 | | | -25 | | | | | 434023 |
| | WOOMERA-BN. AUSTR. | 9003 | | 06 | | | 46.46 | | 28 | | -23 | | | | | 434023 |
| | WOOMERA-BN. AUSTR. | 9003 | | 06 | | | 52.32 | | 59 | | - 8 | | | | | 434013 |
| | | | | | _ | | | | | | | | | | | _ |
| 01268 | OLIFANTSFNTN-BN.S.AF | 9002 | 7 | 07 | 2 | 12 | 43.4 | 23 | 04 | 54 | -42 | 30 | | | | 434023 |
| 01278 | AREQUIPA-BN. PERU | 9007 | 7 | 07 | 8 | 26 | 56.90 | 22 | 22 | 00 | -62 | 12 | | | | 434023 |
| 01273 | VILLA DOLORES-BN.ARG | 9011 | 7 | 07 | | 26 | 56.89 | 23 | 26 | 06 | -27 | 37 | | | | 434023 |
| 01275 | WOOMERA-BN. AUSTR. | 9003 | 7 | 07 | 18 | 54 | 30.77 | 21 | 16 | 00 | -32 | 32 | | | | 434023 |
| 01276 | WOOMERA-BN. AUSTR. | 9003 | 7 | 07 | 16 | 56 | 45.98 | 22 | 32 | 54 | -31 | 10 | | | | 434023 |
| 01277 | WOOMERA-BN. AUSTR. | 9003 | 7 | 07 | 19 | 02 | 04.39 | 0 | 55 | 42 | -20 | 14 | | | | 434013 |
| | | | | | | | | _ | | | | | | | | |
| 01282 | CURACAD-BN. N.W.I. | 9009 | 7 | 08 | 0 | 34 | 24.63 | 13 | 49 | 54 | -45 | 15 | | | | 434023 |
| 01274 | OLIFANTSFNTN-BN.S.AF | 9002 | 7 | 08 | 3 | 26 | 29.2 | 23 | 34 | 06 | -26 | 23 | | | | 434023 |
| 01279 | VILLA DOLORES-BN.ARG | 9011 | 7 | 08 | 7 | 28 | 07.03 | 23 | 12 | 46 | -31 | 00 | | | | 434023 |
| 01280 | VILLA DOLORES-BN.ARG | 9011 | 7 | 08 | 9 | 42 | 58.22 | 23 | 21 | 36 | -15 | 40 | | | | 434013 |
| 01284 | AREQUIPA-BN. PERU | 9007 | | 08 | 9 | 43 | 14.00 | Ó | 16 | 12 | -44 | 13 | | | | 434023 |
| 01281 | WOOMERA-BN, AUSTR. | 9003 | 7 | ÒB | 17 | 56 | 37.58 | 23 | 35 | 48 | -30 | 47 | | | | 434023 |
| | | | _ | | | | | | | | | | | | | |
| | AREQUIPA-BN. PERU | 9007 | | 09 | | | 11.86 | | 27 | | -55 | | | | | 434023 |
| | WOOMERA-BN. AUSTR. | 9003 | | 09 | | | 00.44 | | 56 | | -26 | | | | | 434023 |
| | WOOMERA-BN, AUSTR. | 9003 | | 09 | | | 56.98 | | | | -22 | | | | | 434013 |
| 01289 | WOOMERA-BN. AUSTR. | 9003 | 7 | 09 | 19 | 16 | 18.95 | 1 | 55 | 12 | - 2 | 29 | | | | 434013 |

| OBS NO STATION 01285 OLIFANTSENTN-BN.S.AF 01286 OLIFANTSENTN-BN.S.AF 01295 WOOMERA-BN. AUSTR. 01296 WOOMERA-BN. AUSTR. 01297 WOOMERA-BN. AUSTR. 01298 WOOMERA-BN. AUSTR. 01299 WOOMERA-BN. AUSTR. | 9002 7 9002 7 9003 7 9003 7 9003 7 9003 7 | A7E T1MM 10 1 23 1 10 3 35 10 18 06 1 10 20 15 10 20 21 10 20 23 10 20 29 | 02.4 0 16 48 07.4 22 46 30 56.54 23 33 12 15.83 21 03 36 50.03 23 30 12 04.88 23 56 12 | DECL. AZ -34 26 -19 04 -24 16 -14 27 - 3 00 - 0 06 14 04 | IMUTH ALTITUDE | RANGE INDEX 434023 434013 434023 434013 434013 434013 434013 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------|-----------------------------------------------------------------------------------|
| 01294 OLIFANTSFNIN-BN.S.AF 01301 VILLA DOLORES-BN.SP. | | 11 2 31 11 8 50 | | -29 35 -11 35 | | 434023 434013 |
| 01293 OLIFANTSFNTN-BN.S.AF 01291 OLIFANTSFNTN-BN.S.AF | | 12 1 31 12 3 48 | | -32 30 - 0 55 | | 434023 434013 |
| O1292 OLIFANTSFNTN-BN,S.AF 01300 VILLA DOLORES-BN,SP. 01302 AREQUIPA-BN, PERU 01303 WOOMERA-BN, AUSTR. | 9011 7 9007 7 | | 49.16 22 29 06 25.63 0 56 54 | -11 57 - 2 48 -31 18 - 1 50 | | 434013 434013 434023 434013 |
| 01307 AREQUIPA-BN, PERU 01305 WOOMERA-BN, AUSTR. 01306 WOOMERA-BN, AUSTR. | 9003 7 | 14 10 15 14 18 26 14 20 41 | 21.73 22 39 36 | - 4 33 - 7 23 14 50 | | 434013 434013 434013 |
| 01304 OLIFANTSFNTN-BN,S.AF 01309 AREGUIPA-EN, PERU 01308 WOOMERA-BN, AUSTR. | 9007 7 | 15 2 53 15 9 10 15 19 38 | 05.73 22 49 06 | - 2 08 -23 18 7 56 | | 434013 434023 434013 |
| 01310 AREQUIPA-BN, PERU 01311 AREQUIPA-BN, PERU 01312 WOOMERA-BN, AUSTR. | 9007 7 | 16 8 09 16 10 26 16 18 37 | | -26 39 9 14 6 27 | | 434023 434013 434013 |
| 01313 AREQUIPA-BN, PERU 01315 WOOMERA-BN, AUSTR. | | 17 9 21 17 19 48 | 41.68 23 03 00 48.05 22 21 06 | - 3 47 18 20 | | 434013 434013 |
| 01317 AREQUIPA-BN. PERU 01316 WOOMERA-BN. AUSTR. | | 16 8 18 18 18 45 | 59.49 22 58 18 07.44 22 19 00 | 16 38 15 58 | | 434013 434013 |
| 01318 AREQUIPA-BN. PERU | 9007 7 | 19 9 33 | 30.45 23 16 12 | 15 37 | | 434013 |
| 01319 AREQUIPA-BN, PERU | 9007 7 | 20 8 29 | 30.11 22 38 06 | 0 56 | | 434013 |
| 01320 AREQUIPA-BN.PERU | 9007 7 | 21 9 43 | 15.13 22 43 00 | 25 20 | | 434013 |
| 01321 AREQUIPA-BN. PERU | 9007 7 | 22 8 39 | 33.07 22 06 12 | 15 02 | | 434013 |
| 01322 WOOMERA-BN, AUSTR. 01323 MAUI-BN, HAWAII | | 23 9 10 23 14 05 | 48.30 15 56 42 40.99 1 20 06 | 28 21 -23 18 | | 434013 434023 |
| 01327 AREQUIPA-BN., PERU 01330 MAUI-BN, HAWAII 01324 OLIFNTSFNTN-BN.,S.AF | 9012 7 | 7 24 13 04 | 28.56 21 58 36 16.15 2 03 36 57.5 13 04 06 | 29 05 -26 04 - 5 54 | | 434013 434023 434013 |
| 01331 MAUI~BN, HAWAII | 9012 7 | 25 14 15 | 30.68 0 49 42 | -13 48 | | 434013 |
| 01326 VILLA DOLBN., ARG. 01326 AREQUIPA-BN., PERU 01325 OLIFNTSFNTN-BN.,S.AF 01329 VILLA DOLBN., ARG. | 9007 7 9002 7 | 7 26 9 00 7 26 16 45 | 29.45 23 55 54 38.92 21 34 48 05.0 11 38 24 19.42 16 07 48 | ~26 50 37 13 -31 58 4 47 | | 434023 434013 434023 434013 |
| 01332 CURACAO-BN, N.W.1. | 9009 7 | 7 28 9 18 | 38.70 23 45 36 | 31 35 | | 434013 |
| 01333 SAN FERNANDO-BN, SP. 01334 CURACAO-BN, N.W.I. 01337 MAUI-BN, HAWAII | 9009 7 | 7 29 8 13 | 52.30 1 20 30 22.11 22 31 06 26.81 23 55 42 | -12 24 9 30 12 42 | | 434013 434013 434013 |
| 01335 SAN FERNANDO-BN, SP. 01336 JUPITER-BN, FLA. 01348 MAUI-BN, HAWAII 01338 OLIFNTSFNTN-BN, S.AF | 9010 9012 | 7 30 9 28 | 50.50 1 33 42 20.41 1 00 30 33.14 0 15 00 16.2 11 53 18 | -16 04 10 40 2 05 -76 10 | | 434013 434013 434013 434023 |
| O1464 OLIFNTSFNTN-BN, S.AF O1340 CURACAO-BN. N.W.I. O1339 WOOMERA-BN. AUSTR. O1350 MAUI-BN, HAWAII | 9009 9003 | 7 31 8 26 7 31 9 52 | 49.2 23 26 06 89.15 23 35 36 40.07 14 42 30 25.43 23 58 36 | -54 31 38 10 -50 11 29 06 | | 434023 434013 434023 434013 |
| 01345 CURACAO-BN, N·W·I. 01434 SYDNEY, AUSTRO 01341 ORGAN PASS-BN, N·M· 01346 JUPITER-BN, FLA. 01435 WALNUT CREEK, CAL. 01354 MAUI-BN, MAWAII 01342 OLIFNTSFNTN-BN, S·AI | 0602 6 9001 6 9010 6 8553 6 9012 6 | 8 01 8 54 8 01 9 30 8 01 9 38 8 01 11 39 | 39.08 22 43 54 58.5 15 38 41.40 0 43 00 00.33 0 36 30 20.6 0 08 30 35.20 23 47 12 20.1 10 47 00 | -13 06 17 10 | | 434013 845001 434013 434013 641001 434013 434023 |
| 01344 SAN FERNANDO-BN, SP 01343 WOOMERA-BN, AUSTR, 01347 VILLA DOL,-BN, ARG, 01361 SHIRAZ-BN, IRAN 01362 SHIRAZ-BN, IRAN | 9003 9011 9008 | 8 02 10 02 8 02 22 33 8 02 23 11 | 7 05.30 1 12 36 2 48.66 13 36 42 3 57.16 13 52 12 1 19.83 18 42 00 2 22.30 0 14 00 | -47 12 -39 42 - 8 09 | | 434013 434023 434023 434013 434013 |
| 01352 WOOMERA-BN. AUSTR. 01351 ORGAN PASS-BN. N.M. 01356 PERTH. AUS. 01355 MAUI-BN. HAWAII | 9001 0601 | 8 03 9 39 8 03 11 10 | ? 34.37 15 58 42 ? 03.21 23 41 36) 14.5 3 53.35 23 28 42 | -13 21 1 | 80 80 00 | 434023 434013 845301 434013 |

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| OBS NO STATION 01381 SHIRAZ-BN. IRAN 01382 SHIRAZ-BN. IRAN | STA NO DA 9008 8 9008 8 | 0 24 19.39 04 0 25 24.41 | R. A. 23 54 00 0 29 54 | DECL. 18 32 22 02 | AZIMUTH | ALTITUDE | RANGE INDEX 434013 434013 |
|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------|---------|----------|----------------------------------------------------------|
| 01358 SAN FERNANDO-BN SP. 01353 JUPITER-BN, FLA. 01357 WOOMERA-BN, AUSTR. 01436 WALNUT CREEK, CAL. 01372 SACRAMENTO, CAL. 01363 MAUI-BN, HAWAII | 9010 8 9003 8 8535 8 8517 8 9012 8 | 04 8 48 10.71 04 10 13 27.54 04 10 46 38.7 04 10 46 46.5 04 15 07 09.45 | 1 48 30 14 35 00 23 27 15 23 45 16 | -15 27 29 17 -39 30 -17 15 | 180 00 | 33 56 | 434013 434013 434023 845001 641301 434013 |
| 01364 OLIFNTSFNTN-BN. S.AI 01379 SHIRAZ-BN. IRAN 01380 SHIRAZ-BN. IRAN | 9002 8 9008 8 9008 8 | 04 23 21 44.87 | 12 28 16 16 33 48 0 01 36 | -72 18 5 50 9 12 | | | 434023 434013 434013 |
| 01360 SAN FERNANDO-BN, SP. 01359 WOOMERA-BN, AUSTR. 01439 SACRAMENTO, CAL. 01366 NAINI TAL-BN, INDIA | 9004 B 9003 B 6517 B 9006 B | 9 13 01.82 5 12 01 24.0 | 0 56 00 16 06 36 0 12 24 | 4 34 -47 00 27 41 | 180 00 | 59 18 | 434013 434023 641301 434013 |
| 01367 JUPITER-BN. FLA. 01368 WOOMERA-BN. AUSTR. 01437 WALNUT CREEK, CAL. 01440 SACRAMENTO, CAL. | 9010 8 9003 8 8535 8 8517 8 9 | 16 10 23 34.87 16 10 57 45.3 16 10 57 51.7 | 23 46 30 | 32 20 -19 40 - 5 03 | 180 00 | 45 41 | 434013 434013 845001 641301 |
| 01438 WALNUT CREEK, CAL. 01369 OLIFNTSFNTN-BN, S.AF 01389 SHIRAZ-BN, IRAN 01390 SHIRAZ-BN, IRAN | 9008 8 | 6 16 37 56.96 | | - 3 57 -74 58 16 22 20 32 | | | 845001 434023 434013 434013 |
| 01370 JUPITER-BN. FLA. 01371 ORGAN PASS-BN. N.M. | 9010 6 9001 8 | | 23 03 24 0 40 12 | 19 13 17 38 | | | 434013 434013 |
| 01377 SAN FERNANDO-BN. SPO 01373 ORGAN PASS-BN. Name 01432 ALBUQUERDUE. Name 01385 MAUI-BN. HAWAII 01375 OLIFANTSFNTN-BN.S.AF | 9001 8 0103 8 9012 8 | 08 11 14 01.80 08 11 14 05.7 08 13 11 44.69 | 1 02 24 | - 2 34 31 34 47 02 -61 33 | 180 | 80 00 | 434013 434013 845301 434013 434023 |
| 01383 CURACAO-BN. N.W.I. 01376 WOOMERA-BN. AUSTR. 01433 ALBUQUEROUE. N.M. 01445 FT. WORTH. TEXAS | 9009 8 9003 8 0103 8 0139 6 | 9 9 33 34.79 9 10 10 54.7 | 22 16 12 15 08 54 0 55 | 67 24 -16 19 31 00 | 180 | 72 00 | 434013 434013 845302 845001 |
| 01386 MAUI-BN, HAWAII 01378 NAINI TAL-BN, INDIA | 9012 8 | | 23 07 24 0 33 06 | 56 59 40 55 | | | 434013 434013 |
| 01374 ORGAN PASS-BN, NoMe 01446 FT. WORTH. TEXAS 01443 DALLAS. TEXAS 01444 DALLAS. TEXAS 01387 MAUI-BN. HAWAII | 9001 8 0139 8 0129 8 0129 8 9012 8 | 10 9 11 09 10 9 11 24 10 9 11 26 | 23 31 12 23 54 0 02 0 04 22 20 48 | 13 00 22 30 23 00 23 00 56 31 | | | 494013 845001 845001 845001 434013 |
| 01388 NAINI TAL-BN, INDIA 01404 SHIRAZ-BN, IRAN 01405 SHIRAZ-BN, IRAN 01832 SHIRAZ-BN, IRAN | 9006 8 9008 8 9008 8 9008 8 | 10 29 53 13.64 10 23 53 24.20 | 23 22 42 23 57 48 0 07 06 2 41 12 | 36 42 39 12 39 31 38 21 | | | 434013 434013 434013 434013 |
| 01833 SHIRAZ-BN. IRAN 01834 SHIRAZ-BN. IRAN | 9008 6 9008 6 | 10 23 56 48.61 | 2 44 00 2 47 12 | 38 10 38 00 | | | 434013 434013 |
| 01392 JUPITER-BN, FLA. 01391 HOOMERA-BN, AUSTR. 01393 ORGAN PASS-BN, NaMe 01395 MAUI-BN, HAWAII 01422 SHIRAZ-BN, IRAN | 9010 8 9003 8 9001 8 9012 8 9008 8 | 11 9 42 51.21 11 10 20 58.00 11 14 37 32.39 | 0 09 30 13 12 06 0 05 36 1 47 06 23 45 18 | 46 04 - 3 10 31 03 60 41 34 48 | | | 434013 434013 434013 434013 434013 |
| 01421 SHIRAZ-BN. IRAN 01394 SAN FERNANDO-BN. SP. | | 12 3 03 51.30 | 23 50 54 23 59 36 | 35 02 15 20 | | | 434013 434013 |
| 01442 FT+ WORTH+ TEXAS 01403 JUPITER-BN+ FLA+ 01396 ORGAN PASS-BN+ N+M+ 01399 AREQUIPA-BN+ PERU | 0139 8 9010 8 9001 8 9007 8 | 12 9 27 36•01 12 11 34 17•80 | 0 05 1 28 42 0 27 54 16 48 30 | 30 20 47 52 33 46 -70 57 | | | 845001 434013 434013 434023 |
| 01398 JUPITER-BN. FLA. 01407 WOONERA-BN. AUSTR. 01397 ORGAN PASS-BN. N.M. 01675 FT. WORTH. TEXAS | 9010 9 9003 8 9001 8 0139 6 | 13 9 54 41.66 13 10 32 22.60 | 0 47 42 15 16 36 1 17 54 1 33 | 50 28 27 46 34 03 32 40 | | | 434013 434013 434013 845001 |
| 01400 MAUI-BN: HAWAII 01401 MAUI-BN: HAWAII | 9012 6 9012 8 | 19 12 31 51.87 13 14 47 31.02 | 23 56 18 1 44 18 | 65 24 59 04 | | | 434013 434013 |
| 01406 SAN PERNANDO-BN, SP. 01402 ORGAN PASS-BN, N.M. 01419 MAUI-BN, HAWAII 01420 MAUI-BN, HAWAII | 9004 8 9001 8 9012 8 9012 8 | 14 9 29 10•70 14 13 42 05•22 | 0 23 30 23 49 54 21 32 48 0 45 36 | 20 01 31 56 60 10 65 23 | | | 434013 434013 434013 434013 |
| 01408 OLIFNTSFNTN-BN, S.AI 01413 TOKYO-BN, JAPAN 01412 MITAKA, JAPAN 01414 NAINI TAL-BN, INDIA | 9002 6 9005 6 0229 6 9006 8 | 14 17 19 44.5 14 17 54 48.50 14 17 55 18.5 | 14 22 30 0 13 18 0 52 12 | 20 28 23 23 43 26 | 179 18 | 78 30 | 434013 434013 845301 434013 |
| 01410 SAN FERNANDO-BN. SP. 01411 SAN FERNANDO-BN. SP. 01677 CINCINNATI. OHIO 01427 SHIRAZ-BN. IRAN 01428 SHIRAZ-BN. IRAN | | 15 4 26 33.90 15 8 30 57 15 23 11 50.54 | 0 28 00 1 01 54 22 31 51 0 07 18 0 13 48 | 14 53 18 56 8 35 44 45 44 41 | | | 434013 434013 845001 434013 434013 |
| 01409 SAN FERNANDO-BN. SP. 01676 FT. WORTH, TEXAS 01415 MAUI-BN. HAWAII 01416 MAUI-BN, HAWAII | 9004 8 0139 8 9012 6 9012 8 | 16 9 42 16.4 16 13 52 21.96 | 0 34 30 0 47 21 46 36 1 43 18 | 19 56 32 40 60 00 61 49 | | | 434013 845001 434013 434013 |

| OBS NO STATION 01417 MAUI-BN, HAWAII | STA NO DATE 9012 B 16 | | R• A• 5 11 24 | DECL. AZ | IMUTH ALTITUDE | RANGE INDEX 434013 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------|----------------|------------------------------------------------------------------------------|
| O1429 SHIRAZ-BN, IRAN O1430 SHIRAZ-BN, IRAN O1378 SAN FERNANDO-BN, SP, O1579 SAN FERNANDO-BN, SP, O1450 MAIII-BN, HAWAII O1448 SHIRAZ-BN, IRAN O1449 SHIRAZ-BN, IRAN | 9008 8 J 9008 8 1 9004 8 1 9004 8 1 9012 8 1 9008 8 1 9008 8 1 | 0 25 41.74 2 22 34.50 4 37 00.60 1 14 15 59.69 2 23 22 12.62 | 1 20 36 2 05 06 0 00 30 1 22 24 3 07 54 0 29 12 0 35 36 | 34 43 32 13 17 33 11 50 -19 51 42 33 42 20 | | 434013 434013 434013 434013 434013 434013 |
| 01426 SAN FERNANDO-BN, SP. 01425 WOOMERA-BN, AUSTR. 01441 AREQUIPA-BN, PFRU | 9004 8 18 9003 8 18 9007 8 18 | 9 46 16.69 | 0 37 06 17 41 42 13 44 18 | 15 51 - 5 19 22 34 | | 434013 434013 434013 |
| 01431 JUPITER-BN, FLA. 01447 OLIFNTSFNTN-BN, S.AF | 9010 8 1 9002 8 1 | | 0 34 24 13 36 12 | 40 28 29 58 | | 434013 434013 |
| O1462 JUPITER-BN, FLA. O1452 WOOMERA-BN, AUSTR. O1453 MAUI-BN, HAWAII | 9010 8 2 9003 8 2 9012 8 2 | 9 17 17.34 | 23 37 42 15 53 42 1 32 18 | 51 27 - 2 23 47 18 | | 434013 434013 434013 |
| 01454 SAN FERNANDO-BN. SP. | 9004 8 2 | 2 43 16.50 | 0 37 24 | 10 56 | | 434013 |
| 01455 MAUI-BN, HAWAII | 9012 8 2 | | 1 49 06 | 30 27 | | 434013 |
| 01456 MAUI-BN. HAWAII | 9012 8 2 | 3 13 23 39.28 | 1 01 12 | 50 17 | | 434013 |
| 01515 SAN FERNANDO-BN, SP. 01457 MAUI-BN, HAWAII 01458 MAUI-BN, HAWAII | 9004 8 20 9012 8 20 9012 8 20 | 5 41 07.28 | 0 02 42 19 03 36 21 22 24 | -10 26 -40 49 26 53 | | 434013 434023 434013 |
| 01460 MAUI-BN, HAWAI! 01461 MAUI-BN, HAWAII | 9012 8 2 9012 8 2 | | 1 34 00 0 55 42 | 60 58 53 14 | | 434013 434013 |
| 01463 CURACAO-BN, N.W.I. 01467 MAUI-BN, HAWAII 01465 NAINI TAL-BN. INDIA | 9009 8 2 9012 8 2 9006 8 2 | 14 46 41.81 | 1 53 00 1 03 18 0 42 00 | 28 45 - 5 56 -22 27 | | 434013 434013 434013 |
| 01466 JUPITER-BN, FLA. 01468 MAUI-BN, HAWAII 01470 CURACAO-BN, N.W.I. | 9010 8 2 9012 8 2 9009 8 2 | 7 13 44 13.18 | 0 22 24 0 29 48 16 31 54 | -18 06 11 15 56 41 | | 434013 434013 434013 |
| 01471 CURACAO-BN, N.W.I. 01469 AREOUIPA-BN, PERU 01474 NAINI TAL-BN, INDIA 01472 MAUI-BN, HAWAII | 9009 8 2 9007 8 2 9006 8 2 9012 8 2 | 8 8 44 07.53 8 14 25 05.27 | 1 55 42 4 24 12 17 54 30 0 58 48 | 1 45 41 15 -22 41 -23 00 | | 434013 434013 434013 434023 |
| 01475 AREQUIPA-BN. PERU | 9007 8 2 | 9 9 55 14.95 | 3 12 00 | 25 32 | | 434013 |
| 01473 OLIFANTSENTN-BN.S.AF 01476 MAUI-BN. HAWAII | 9002 8 3 9012 8 3 | | 4 54 24 1 00 18 | 25 43 -36 27 | | 434013 434023 |
| 01477 AREQUIPA-BN. PERU 01478 MAUI-BN. HAWAII | 9007 8 3 9012 8 3 | | 3 46 48 2 00 42 | - 0 08 34 13 | | 434013 434013 |
| 01480 MAUI-BN, HAWAII 01479 VILLA DOLORES-BN,ARG | 9012 9 0 9011 9 0 | | 14 37 48 6 48 30 | 76 34 ~ 0 07 | | 434013 434013 |
| O1482 OLIFANTSFNTN-BN,S.AF O1481 AREOUIPA-BN. PERU O1484 WOOMERA-BN, AUSTR. | 9002 9 0 9007 9 0 9003 9 0 | 2 8 01 42.98 | 4 16 24 3 35 18 4 30 30 | 29 44 35 08 28 30 | | 434013 434013 434013 |
| 01483 OLIFANTSFNTN-BN.S.AF 01485 VILLA DOLORES-BN.ARG 01577 MITAKA, JAPAN 01487 WOOMERA-BN. AUSTR. | | 3 9 19 52.44 3 10 44 49.4 | 4 12 24 5 36 36 4 50 42 | 6 05 9 25 5 25 | 66 00 52 48 | 434013 434013 845301 434013 |
| 01525 AJKEN, S.C. 01486 OLIFANTSFNTN-BN,S.AF 01499 SAN FERNANDO-BN, SP. | | 4 1 59 19.50 | | 17 00 18 08 - 2 48 | | 634042 434013 434013 |
| 01488 ORGAN PASS-BN, Name 01558 FT. WORTH, TEXAS 01490 OLIFANTSFNTN-BN.S.AF 01503 MAUI-BN, HAWAII 01502 VILLA DOLORES-BN.ARG 01504 MAUI-BN, HAWAII 01494 WOOMERA-BN, AUSTR. 01495 WOOMERA-BN, AUSTR. | 9001 9 0 0139 9 0 9002 9 0 9012 9 0 9011 9 0 9012 9 0 9003 9 0 | 5 2 31 38.4 5 3 11 09.50 5 6 43 17.88 5 9 29 24.23 5 13 25 04.43 5 17 43 09.23 | 19 54 48 18 58 30 3 47 48 11 53 48 4 16 48 1 19 30 4 21 00 4 20 30 | 24 52 31 40 6 43 81 54 0 04 26 31 27 54 3 07 | | 434013 845001 434013 434013 434013 434013 434013 |
| 01559 VAN NUYS, CAL. 01560 SAN DIEGO, CAL. 01561 ALBUQUERQUE, N.M. 01562 ALBUQUERQUE, N.M. 01505 MAUI-EN, HAWAII 01500 AREQUIPA-EN, PERU 01501 VILLA DOLORES-BN, AGE 01496 WOOMERA-BN, AUSTR. 01498 SAN FERNANDO-BN, SP. | 9011 9 (| 6 3 38 37 6 3 39 34.3 6 3 40 05.4 6 5 41 29.46 6 8 21 43.93 6 8 27 41.71 6 18 54 30.67 | 2 25 36 4 31 12 4 01 18 | 32 36 9 36 11 24 73 37 3 47 9 29 11 09 3 33 | 80 74 30 | 845301 845001 845001 845001 434013 434013 434013 434013 |
| 01563 ALBUQUERQUE, N.M. 01564 ALBUQUERQUE, N.M. 01565 FT. WORTH, TEXAS 01493 WOOMERA-BN, AUSTR. 01491 WOOMERA-BN, AUSTR. | 8534 9 6 8534 9 6 0139 9 6 9003 9 6 9003 9 6 | 7 2 39 53.6 17 2 41 50.5 17 17 52 20.02 | | 12 48 13 15 35 36 23 33 1 10 | | 845001 845001 845001 434013 434013 |

| OBS NO STATION 01492 WOOMERA-BN+ AUSTR+ | 5TA NO 9003 | DATE 9 07 | TIME 20 06 41.15 | R+ A+ 3 59 12 | DECL. -13 20 | AZIMUTH | ALTITUDE | RANGE INDEX 434013 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------|---------|----------|----------------------------------------------------------|
| 01489 OLIFANTSFNTN-BN.S.AF 01566 VAN NUYS. CAL. 01506 VILLA DOL-BN. ARG. 01508 WOOMERA-BN. AUSTR. 01509 SAN FERNANDO-BN. SP. | 0113 9011 9003 | 9 08 9 08 9 08 9 08 9 08 | 2 18 37.20 3 48 23 8 36 44.04 19 03 34.62 20 34 11.00 | 3 26 36 3 57 30 3 21 48 19 02 18 | - 7 05 1 12 2 44 1 56 | 180 | 78 | 434013 845301 434013 434013 434013 |
| 01507 OLIFNTSFNTN-BN. S.AF 01567 ALBUQUERQUE. N.M. 01511 VILLA DOLORES-BN.ARG 01512 ARCDUIPA-BN. PERU 01514 WOOMERA-BN. AUSTR. | 0103 | 9 09 9 09 9 09 9 09 9 09 | 1 17 04-20 2 49 45-4 7 34 21-18 9 44 11-74 20 16 00-07 | 3 48 24 3 40 12 1 35 36 3 35 24 | 6 06 15 43 -44 20 -22 05 | 180 00 | 70 24 | 434013 845302 434013 434023 434013 |
| 01513 OLIFANTSFNTN-BN.S.AF 01568 VAN NUYS. CAL. 01569 SAN DIEGO, CAL. 01518 MAUI-BN, HAWAII 01516 WOOMERA-BN. AUSTR. | 9002 0113 0133 9012 9003 | 9 10 9 10 9 10 9 10 9 10 | 2 28 08.56 3 58 28 3 58 54 6 02 53.39 19 14 17.98 | 2 51 48 19 31 23 42 00 3 45 30 | -21 52 25 42 85 20 -14 03 | 180 | 71 15 | 434013 845301 845001 434013 434013 |
| 01517 ORGAN PASS-BN, N.M. 01570 ALBUQUERQUE. N.M. 01520 WOOMERA-BN, AUSTR. | 9001 0103 9003 | 9 11 9 11 9 11 | 2 59 31.20 2 59 49.2 18 11 48.39 | 18 14 42 3 18 30 | 30 22 2 28 | 180 | 63 36 | 434013 845302 434013 |
| 01571 FT. WORTH. TEXAS 01521 AREQUIPA-BN. PERU 01522 VILLA DOLORES-BN.ARG | 0139 9007 9011 | 9 12 9 12 9 12 | 2 00 34 8 52 41.44 8 57 08.45 | 18 48 1 32 36 4 20 48 | 29 40 -54 42 -24 19 | | | 845001 434023 434023 |
| 01572 CINCINNATI, OHIO 01519 ORGAN PASS-BN, N.M. | 9001 | 9 13 9 13 | 1 01 35 3 09 32•23 | 18 44 00 18 10 18 | - 8 54 15 48 | | | 845001 434013 |
| 01523 ORGAN PASS-BN. N.M. 01524 VILLA DOLORES-BN.ARG 01527 WOOMERA-BN. AUSTR. | 9001 9011 9003 | 9 14 9 14 9 14 | 2 07 51.40 9 07 20.25 19 32 56.36 | 17 18 42 4 42 48 2 46 36 | 30 51 -28 16 -30 32 | | | 434013 434023 434023 |
| 01526 OLIFNTSFNTN-BN. S.AF 01528 V. DOLORES-BN. ARG. 01529 WOOMERA-BN. AUSTR. 01532 SAN FERNANDO-BN. SP. | 9011 9003 | 9 15 9 15 9 15 9 15 | 1 45 24.60 6 03 28.15 18 31 06.67 20 02 16.10 | 1 38 42 2 48 24 2 35 00 17 51 30 | -35 21 -19 36 -22 47 - 8 10 | | | 434023 434013 434013 434013 |
| 01531 ORGAN PASS-BN, N.M. 01533 V. DOLORES-BN, ARG. 01535 WOOMERA-BN, AUSTR. | 9001 9011 9003 | 9 16 9 16 9 16 | 2 19 03.20 9 15 50.33 19 43 35.90 | 19 36 42 3 41 36 3 37 12 | 9 59 -35 05 -38 11 | | | 434013 434023 434023 |
| 01534 OLIFNTSFNTN-BN. 5.AF 01538 MAUI-BN. HAWAII 01537 WOOMERA-BN. AUSTR. 01536 SAN FERNANDO-BN. SP. | 9012 9003 | 9 17 9 17 9 17 9 17 | 1 56 27.70 5 31 07.06 18 41 34.79 20 11 40.00 | 2 52 18 11 47 36 3 13 18 17 21 00 | -51 51 71 66 -35 11 -14 31 | | | 434023 434013 434023 434013 |
| 01539 JUPITER-BN, FLA. 01541 TOKYO-BN, JAPAN 01545 WOOMERA-BN, AUSTR. 01546 WOOMERA-EN, AUSTR. | 9010 9005 9003 9003 | 9 18 9 18 9 18 9 18 | 0 21 50•77 10 53 15•20 19 48 45•20 19 54 10•76 | 18 46 48 18 21 12 0 04 42 4 33 54 | 37 53 -27 57 -22 17 -38 56 | | | 434013 434023 434013 434023 |
| 01544 OLIFNTSFNTN-BN, S.AF 01542 MAUI-BN, HAMAU 01549 AREOUIPA-BN, PERU 01554 TOKYO-BN, JAPAN 01553 MITAKA, JAPAN 01547 WOOMERA-BN, AUSTR. | 9002 9012 9007 9005 0229 9003 | 9 19 9 19 9 19 9 19 9 19 9 19 | 2 06 01.00 5 41 41.35 8 21 13.75 9 51 36.00 9 51 38.0 18 51 28.90 | 2 02 24 18 55 30 0 42 36 17 49 18 3 22 48 | -55 42 54 38 -75 58 -12 09 -40 21 | 200 12 | 39 48 | 434023 434013 434023 434013 845301 434023 |
| 01540 ORGAN PASS-BN. N.M. 01552 V. DOLORES-BN. ARG. 01548 WOOMERA-BN. AUSTR. 01550 CURACAO-BN. N.W.I. | 9001 9011 9003 9009 | 9 20 9 20 9 20 9 20 | 2 37 08.60 7 22 37.52 17 50 50.05 23 34 11.92 | 17 02 54 4 06 48 4 39 48 21 05 36 | - 7 40 -33 09 -36 47 66 39 | | | 434013 434023 434023 434013 |
| 01543 OLIFNTSFNTN-BN• S•AF 01551 V• DOLORES-BN• ARG• 01555 NAINI TAL-BN• INDIA | 9002 9011 9006 | 9 21 9 21 9 21 | 2 14 39.17 8 32 37.46 14 13 18.00 | 0 41 18 2 27 42 17 16 30 | -51 57 -35 49 - 9 55 | | | 434023 434023 434013 |
| 01556 ORGAN PASS-BN, N.M. 01557 VILLA DOLORES-BN.ARG 01573 WOOMERA-BN, AUSTR. 01574 SAN FERNANDO-BN, SP. 01575 CURACAO-BN. N.W.I. | 9003 | 9 22 9 22 9 22 9 22 9 22 | 2 47 16.00 7 32 00.77 18 00 51.98 19 29 21.70 23 44 23.49 | 17 14 00 3 37 06 5 07 30 16 42 54 20 07 00 | -21 17 -38 02 -38 55 -16 30 51 26 | | | 434013 434023 434023 434013 434013 |
| 01581 MAUI-BN. HAWAII 01576 VILLA DOLORES-BN.ARG | 9012 9011 | 9 23 9 23 | 6 01 01.04 8 43 37.09 | 17 10 36 4 05 12 | 4 34 -31 56 | | | 434013 434023 |
| 01583 JUPITER-BN. FLA. 01580 OLIFANTSFNTN-BN.S.AF 01582 V. DOLORES-BN. ARG. 01584 WOOMERA-BN. AUSTR. 01585 CURACAO-BN. N.W.I. | 9010 9002 9011 9003 9009 | 9 24 9 24 9 24 9 24 9 24 | 0 51 46.60 1 25 01.00 7 41 06.01 18 09 31.26 23 54 56.75 | 17 51 42 4 28 06 2 32 54 3 26 36 19 47 42 | -25 15 -62 32 -37 50 -41 55 16 36 | | | 434023 434023 434023 434023 434023 |
| 01587 AREQUIPA-BN. PERU | 9007 | 9 25 | 8 53 06+62 | 6 42 06 | -70 03 | | | 434023 |
| O1630 OLIFNTSFNTN-BN, S.AF O1633 V. DOLORES-BN, ARG. O1634 WOOMERA-BN, AUSTR. O1635 WOOMERA-BN, AUSTR. | 9002 9011 9003 9003 | 9 26 9 26 9 26 9 26 | 1 34 24.90 7 51 34.96 18 19 26.10 18 22 50.48 | 3 30 00 3 42 12 3 41 54 7 01 00 | -60 45 -31 03 -34 36 -14 36 | | | 434023 434023 434023 434013 |
| 01632 CURACAO-BN, N.W.I. 01627 ORGAN PASS-BN, N.M. 01628 OLIFNTSFNTN-BN, S.AF | 9009 9001 9002 | 9 27 9 27 9 27 | 0 04 15.59 2 05 30.00 2 45 57.29 | 17 59 48 16 56 12 3 40 06 | - 9 07 -28 21 -35 58 | | | 434013 434023 434023 |

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| OBS NO STATION 01631 AREQUIPA-BN, PERU 01636 WOOMERA-BN, AUSTR. | 5TA NO DA 9007 9 9003 9 | 9 03 12.71 | R• A• DECL• 6 22 24 -62 15 4 19 18 - 8 35 | | RANGE INDEX 434023 434013 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------|
| O1629 OLIFNTSFNTN-BN, S.AF O1640 MAUI-BN, HAWAII O1638 NAINI TAL-BN, INDIA O1637 WOOMERA-BN, AUSTR. | 9002 9 9012 9 9006 9 9003 9 | 28 5 19 45.82 28 13 40 23.80 | 5 21 30 -43 49 17 12 36 -20 25 16 28 12 -26 32 3 44 12 -21 08 | | 434023 434013 434023 434013 |
| O1639 CURACAO-BN, N.W.I. O1642 OLIFNTSFNIN-BN, S.AF O1641 AREQUIPA-BN, PERU O1643 WOOMERA-BN, AUSTR. | 9009 9 9002 9 9007 9 9003 9 | 29 2 56 41.50 29 9 13 06.65 | 17 12 42 -27 52 4 31 06 -13 28 5 45 48 -51 12 4 01 48 6 16 | | 434023 434013 434023 434013 |
| 01647 MAUI-BN. HAWAII 01644 WOOMERA-BN. AUSTR. | 9012 9 9003 9 | 30 5 28 55.87 30 18 39 03.90 | 16 31 18 -27 33 3 30 30 - 4 08 | | 434023 434013 |
| 01646 AREQUIPA-BN+ PERU | 9007 10 | 01 9 23 15.48 | 5 25 42 -30 35 | | 434023 |
| 01648 AREQUIPA-BN. PERU | 9007 10 | 8 21 22.81 | 6 04 18 -50 13 | | 434023 |
| 01651 AREQUIPA-BN. PERU | 9007 10 | 9 32 48,94 | 3 17 00 -16 48 | | 434013 |
| 01649 OLIFNTSFNTN-BN, S.AF 01650 AREQUIPA-BN, PERU | 9002 10 9007 10 | | 2 55 36 7 48 4 58 48 -31 25 | | 434013 434023 |
| 01652 WOOMERA-BN. AUSTR. | 9003 10 | 05 18 41 59.46 | 4 24 00 -36 46 | • | 494023 |
| 01653 AREQUIPA-BN. PERU | 9007 10 | 8 40 06.30 | 3 10 54 -10 07 | | 434013 |
| 01657 AREQUIPA-BN, PERU 01654 OLIFNTSFNIN-BN, S.AF | 9007 10 9002 10 | | 19 07 42 -34 57 20 47 30 - 4 10 | | 434023 434013 |
| 01655 CURACAO-BN: N:WeI: 01656 WOOMERA-BN: AUSTR: | 9009 10 9003 10 | | 7 56 12 -25 50 21 29 48 9 13 | | 434023 434013 |
| 01660 AREQUIPA-BN, PERU 01663 VILLA DOLORES-BN,ARG | 9007 10 9011 10 | | 18 09 12 -52 47 21 09 12 - 3 01 | | 434023 434013 |
| 01662 CURACAO-BN, N.W.I. 01659 WOOMERA-BN, AUSTR. | 9009 10 9003 10 | 10 9 06 04.43 | 6 46 24 -17 29 20 57 54 - 8 59 | • | 434013 434013 |
| 01665 MAUT-BN. HAWAII | 9012 10 | | 7 19 54 -16 22 | | 434013 |
| 01661 CURACAO-BN, N.W.I. 01664 MAUI-BN, HAWAII 01658 OLIFANTSFNTN-BN,S.AF | 9009 10 9012 10 9002 10 | 11 14 23 58.55 | 7 13 00 -35 40 7 24 12 -32 50 19 28 00 -47 26 |) | 434023 434023 434023 |
| 01666 WOOMERA-BN. AUSTR. | 9003 10 | 12 10 46 25.89 | 20 32 48 -26 02 | : | 434023 |
| O1667 CURACAO-BN, N.W.I. O1672 MAUI-BN, HAWAII O1668 WOOMERA-BN, AUSTR. C1670 NAINI TAL-BN, INDIA | 9009 10 9012 10 9003 10 9006 10 | 13 14 34 48.63 13 19 21 02.41 | 6 26 12 -20 08 7 42 00 -10 47 3 56 18 5 00 7 34 48 -23 31 | | 434013 434013 434013 434023 |
| 01705 SHIRAZ-BN, IRAN 01706 SHIRAZ-BN, IRAN 01669 SAN FERNANDO-BN, SP. 01671 JUPITER-BN, FLA. 01673 WOOMERA-BN, AUSTR. 01674 MAUI-BN, HAWAII | 9008 10 9008 10 9004 10 9010 10 9003 10 9012 10 | 14 1 05 35.23 14 5 18 16.00 14 9 24 43.47 14 10 56 06.93 | 7 08 12 -22 10 7 57 36 -13 53 7 54 00 -18 24 7 12 18 -25 12 20 20 30 -37 42 7 23 24 -28 23 | ! • • | 434013 434013 434013 434023 434023 |
| 01678 MAUI-BN, HAWAII 01679 OLIFANTSFNTN-BN,S.AF 01680 NAINI TAL-BN, INDIA | 9012 10 9002 10 9006 10 | 15 18 21 16.70 | 7 19 42 8 40 20 35 30 -68 29 7 35 42 - 9 22 |) | 434013 434023 434013 |
| 01681 JUPITER-BN, FLA. 02063 WOOMERA-BN, AUSTR. 01682 ORGAN PASS-BN, N.M. 01689 NAINI TAL-BN, INDIA | 9010 10 9003 10 9001 10 9006 10 | 16 11 06 35.66 16 11 41 53.00 | 7 50 42 -20 30 22 00 18 -45 19 7 03 24 -14 19 7 31 30 -23 39 | 5 7 | 434013 434023 434013 434023 |
| 01686 WOOMERA-BN, AUSTR. 01690 NAINI TAL-BN, INDIA | 9003 10 9006 10 | | | | 434023 434013 |
| 01695 AREQUIPA-BN, PERU 01688 SAN FERNANDO-BN, SP. 01685 WOOMERA-BN, AUSTR 01683 ORGAN PASS-BN, N.M. 01691 NAINI TAL-BN, INDIA | 9007 10 9004 10 9003 10 9001 10 9006 10 | 18 5 37 04.10 18 11 16 41.32 18 11 51 54.40 | 7 31 18 - 1 3° 22 56 12 -40 3° | 7 2 • | 434023 434013 434023 434013 434013 |
| O1687 SAN FERNANDO-BN, SP. 01692 WOOMERA-BN, AUSTR. 01684 ORGAN PASS-BN, N.M. 01699 MAUI-BN, HAWAII 01693 TOKYO-BN, JAPAN 01694 NAINI TAL-BN, INDIA | 9004 10 9003 10 9001 10 9012 10 9005 10 9006 10 | 19 10 14 22.63 19 10 49 58.20 19 15 02 54.70 19 16 03.40 | 21 16 24 -42 4: 6 56 12 -16 2: 5 05 36 45 0: 7 32 48 - 2 5: | | 434013 434023 434013 434013 434013 434013 |
| 01698 AREQUIPA-SN. PERU | 9007 10 | | | · | 434023 434023 845302 |
| 01697 WOOHERA-BN. AUSTR. 01725 ALAMOGORDO. N.M. 01696 ORGAN PASS-BN. N.M. 01700 MAUI-BN. HAWATI | 9003 10 0102 10 9001 10 9012 10 | 20 12 01 23 20 12 01 30.20 | | | 434013 434013 |
| 01725 ALAMOGORDO: N.M. 01696 ORGAN PASS-RN: N.M. | 0102 10 9001 10 | 20 12 01 23 20 12 01 30.20 20 14 02 12.24 21 10 25 03.02 21 10 59 29.40 21 11 01 27.6 | 7 01 18 36 2 22 59 42 -35 5 6 39 42 - 3 5 6 32 8 0 | | 434013 |

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| OBS NO STATION 01703 SAN FERNANDO-BN, SP. 01708 WOOMERA-BN, AUSTR. 01707 ORGAN PASS-BN, N.M. 01711 TOKYO-BN, JAPAN 01710 MITAKA, JAPAN | STA NO DATE 9004 10 22 9003 10 22 9001 10 22 9005 10 22 0229 10 22 | TIME 3 44 15.80 11 34 39.09 12 10 48.60 18 22 23.51 18 23 18.3 | Ro Ao DECLo 7 52 24 -11 36 20 39 00 -21 10 6 38 18 24 46 7 15 12 - 7 04 | AZ [MUTH | ALTITUDE RANG | E INDEX 434013 434013 434013 434013 845301 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------------------------|----------------------------------------------------------------------------------------|
| O1709 SAN FERNANDO-BN, SP. 01713 ORGAN PASS-BN, NAM. 01727 WALNUT CREEK, CAL. 01730 WALNUT CREEK, CAL. 01729 WALNUT CREEK, CAL. 01731 WALNUT CREEK, CAL. 01731 WALNUT CREEK, CAL. 01718 WALNUT CREEK, CAL. 01719 MAUNUT CREEK, CAL. | 9004 10 23 9001 10 23 8535 10 23 8536 10 23 8535 10 23 8535 10 23 8535 10 23 9012 10 23 | 4 54 02+30 11 08 40+40 13 18 49+0 13 18 51+0 13 18 51+0 13 19 00+8 13 19 21+5 15 23 08+22 | 6 53 24 2 55 5 53 42 8 06 7 13 15 7 33 7 13 20 7 42 7 20 12 8 15 7 45 00 9 06 5 28 00 70 33 | 180 | 59 39 00 | 434013 434019 845001 845001 845301 845001 845001 434013 |
| 01715 AREQUIPA-BN, PERU 01784 WALNUT CREEK, CAL. 01786 WALNUT CREEK, CAL. 01787 WALNUT CREEK, CAL. 01732 CHINA LAKE, CAL. 01782 CHINA LAKE, CAL. 01783 ALBUQUERQUE, N.M. 01734 ALBUQUERQUE, N.M. 01718 MAUI-BN, HAWAII | 9007 10 24 8535 10 24 8535 10 24 8535 10 24 0098 10 24 8535 10 24 0103 10 24 9012 10 24 | 1 13 13.62 12 16 35.2 12 16 37.2 12 16 38.0 12 17 50.0 12 18 02.2 12 20 51.2 12 21 41.0 14 21 44.36 | 21 54 30 -71 37 6 15 00 - 6 12 6 19 00 - 6 00 7 45 00 0 30 6 45 36 71 01 | 180 180 00 180 135 | 46 00 64 27 00 76 24 73 00 | 434023 845001 845301 641001 641302 845001 845302 845302 434013 |
| 01720 WOOMERA-BN, AUSTR- 01756 ORGAN PASS-BN, N.M. 01745 FT. WORTH- TEXAS 01717 MAUI-BN, HAWAII | 9003 10 25 9001 10 25 0139 10 25 9012 10 25 | 10 43 06.51 11 18 20.10 11 21 07 15 32 52.99 | 21 14 36 -19 40 5 46 42 22 41 7 07 30 30 45 5 27 42 74 25 | | | 434013 434013 845001 434013 |
| 01716 JUPITER-BN. FLA. 01721 MAUI-BN. HAWAII | 9010 10 26 9012 10 26 | 10 23 08.35 14 30 39.55 | 6 09 30 59 05 3 29 12 74 18 | | | 434013 434013 |
| 01722 AREQUIPA-BN. PERU 01741 SHIRAZ-BN. IRAN 01723 WOOMERA-BN. AUSTR. | 9007 10 27 9008 10 27 9003 10 27 | 0 24 39.96 1 00 23.49 10 52 54.83 | 22 59 12 -63 18 3 37 48 47 33 21 22 18 - 3 23 | | | 434023 434013 434013 |
| 01724 JUPITER-BN, FLA. 01762 CHINA LAKE, CAL. 01737 MAUI-BN, HAWAII 01735 OLIFANTSFNTN-BN,S.AF | 9010 10 28 0098 10 28 9012 10 28 9002 10 28 | 10 33 26.07 12 37 16.6 14 41 08.36 18 18 00.80 | 7 46 54 59 01 6 51 30 81 37 21 22 00 - 7 46 | 180 00 | 72 58 48 | 434013 641302 434013 434013 |
| 01776 SHIRAZ-BN. IRAN 01736 SAN FERNANDO-BN. SP. 01738 PITTSBURGH. PA. 01758 W. PALM BEACH. FLA. 01759 W. PALM BEACH. FLA. 01753 WOOMERA-BN. AUSTR. 01763 FT. WORTH. TEXAS 01740 TOKYO-BN. JAPAN | 9008 10 29 9004 10 29 8571 10 29 0016 10 29 0016 10 29 9003 10 29 9005 10 29 | 1 09 51.22 5 22 14.10 9 31 18.5 9 56 53 9 56 59 10 02 29.11 11 40 31.4 20 02 38.90 | 7 32 24 50 57 6 25 48 13 44 6 31 - 5 45 21 12 30 11 47 7 41 30 31 14 6 26 36 15 06 | 150 151 | 71 71 | 434013 434013 845041 845301 845301 434013 845001 434013 |
| 01739 SAN FERNANDO-BN, SP. 01753 MAUI-BN, HAWAII | 9004 10 30 9012 10 30 | 4 21 36.80 14 51 13.75 | 7 24 36 11 35 9 17 00 79 49 | | | 434013 434013 |
| 01750 AREQUIPA-BN, PERU 01765 SMIRAZ-BN, IRAN 01766 SHIRAZ-BN, IRAN 01749 SAN FERNANDO-BN, SP- 01760 W- PALM BEACH, FLA- 01752 JUPITER-BN, FLA- 01768 WOOMERA-BN, AUSTR- 01748 WOOMERA-BN, AUSTR- 01746 OLIFANTSFNTN-BN, S.AF | 9007 10 31 9008 10 31 9008 10 31 9004 10 31 0016 10 31 9010 10 31 9003 10 31 9007 10 31 | 0 44 23.28 1 19 53.57 1 20 24.53 5 31 55.90 9 31 37 9 41 16 11 12 28.76 17 25 17.39 23 41 48.19 | 22 12 36 -25 36 6 25 12 47 52 7 32 06 46 48 6 44 12 8 13 7 08 24 64 40 21 17 42 24 41 20 55 30 -9 47 21 58 00 -43 16 | 152 10 | 73 51 | 434025 434013 434013 434013 845301 434013 845301 434013 434013 |
| 01802 SHIRAZ-BN. IRAN 01789 KANSAS CITY. MO. 01747 OLIFANTSFNTN-BN.S.AF | 9008 11 01 0036 11 01 9002 11 01 | 0 19 11.85 10 48 58.1 18 37 36.50 | 8 18 00 51 00 7 10 - 3 30 21 02 48 25 12 | | | 434013 845001 434013 |
| 01754 AREQUIPA-BN. PERU 01755 SAN FERNANDO-BN. SP. 01790 W. PALM BEACH. FLA. 01791 W. PALM BEACH. FLA. 01767 AREQUIPA-BN. PERU | 9007 11 02 9004 11 02 0016 11 02 0016 11 02 9007 11 02 | 0 54 27.49 5 41 19.60 9 50 53 9 51 00 23 50 51.64 | 21 55 42 3 25 6 38 18 - 1 05 20 54 42 -28 04 | 7 12 | 58 58 | 434013 434013 845301 845301 434023 |
| 01757 SAN FERNANDO-BN. SP. 01764 WOOMERA-BN. AUSTR. | 9004 11 03 9003 11 03 | 4 39 50.00 10 19 40.11 | 6 09 00 2 18 20 49 30 20 22 | | | 434013 434013 |
| 01768 AREQUIPA-BN. PERU 01775 SHIRAZ-BN. IRAN 01792 CHINA LAKE. CAL. 01770 OLIFANTSFNTN-BN.S.AF | 9007 11 04 9008 11 04 0098 11 04 9002 11 04 | 1 03 51.39 1 39 41.20 12 04 32.5 17 43 56.06 | 22 11 00 22 04 7 27 54 17 30 20 14 48 17 12 | 180 00 | 52 56 24 | 434013 434013 641302 434013 |
| 01769 AREQUIPA-BN. PERU 01816 SHIRAZ-BN. IRAN 01771 WOOMERA-BN. AUSTR. 01773 MAUI-BN. HAKAII 01772 TOKYO-BN. JAPAN | 9007 11 05 9008 11 05 9003 11 05 9012 11 05 9005 11 05 | 0 01 22.68 0 37 59.37 10 26 42.22 15 20 39.71 19 30 18.20 | 21 15 54 -0 28 7 07 18 35 35 19 36 06 17 50 8 42 18 54 15 6 45 48 -13 45 | | | 434013 434013 434013 434013 |
| 01797 CHINA LAKE, CAL. 01774 MAUI-BN. HAWAII | 0098 11 06 9012 11 06 | 12 14 24.2 14 09 38.70 | 10 40 24 57 44 | 180 00 | 36 49 12 | 641302 434013 |
| 01782 AREQUIPA-BN. PERU 01778 CURACAO-BN. N.W.I. 01794 SHIRAZ-BN, IRAN | 9007 11 07 9009 11 07 9008 11 07 | 0 10 45.38 0 12 52.26 0 47 24.76 | 20 41 12 16 36 21 20 42 -48 15 6 29 06 14 50 | | | 434013 434023 434013 |

| OBS NO STATION 01798 FT. WORTH, TEXAS 01779 TOKYO-BN, JAPAN | STA NO DATE 0139 11 07 9005 11 07 | TIME 11 17 57 19 39 30•00 | R. A. DECL. 7 53 -18 55 6 16 48 -23 23 | AZIMUTH | ALTITUDE RANGE | INDEX 845001 434023 |
|-------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------|------------------------------------------------------|----------------|----------------|----------------------------|
| 01780 MITAKA. JAPAN | 0229 11 07 | 19 39 34.2 | 0 10 40 25 25 | 205 18 | 26 18 | 845301 |
| 01799 CHINA LAKE, CAL. | 0098 11 08 | 12 24 29.5 | | 180 00 | 25 41 24 | 641302 |
| 01781 WOOMERA-BN, AUSTR. 01777 MAUI-BN, HAWAII 01800 CURACAO-BN. N.W.I. | 9003 11 09 9012 11 09 9009 11 09 | 11 33 47.99 15 39 55.22 23 25 04.10 | 21 40 48 15 17 7 13 00 0 09 0 13 18 -21 55 | | | 434013 434013 434013 |
| 01795 CURACAO-BN, N.W.I. 01796 CURACAO-BN, N.W.I. 01801 WOOMERA-BN, AUSTR. | 9009 11 11 9009 11 11 9003 11 11 | 0 35 45.58 9 31 41.55 11 09 09.39 | 22 33 54 9 35 7 21 42 36 48 21 27 54 15 14 | | | 434013 434013 434013 |
| 01793 ORGAN PASS-BN, N.M. 01803 CURACAO-BN, N.W.I. | 9001 11 11 9009 11 11 | 11 34 40.20 23 34 27.78 | 6 35 24 -34 28 23 34 12 - 3 56 | | | 434023 434013 |
| 01804 CUPACAO-BN. N.W.I. 01808 CURACAO-BN. N.W.I. | 9009 11 13 9009 11 13 | 0 45 17.28 23 43 56.47 | 21 43 18 31 55 22 54 12 -18 49 | | | 434013 434013 |
| O1813 JUPITER-BN. FLA. O1809 CURACAO-BN. N.W.I. O1814 MAUI-BN. HAWAI! | 9010 11 15 9009 11 15 9012 11 15 | 0 53 58.37 0 54 38.95 5 00 56.75 | 23 28 12 - 8 12 22 53 42 44 04 23 09 06 - 8 43 | | | 434013 434013 |
| 01807 NAINI TAL-BN, INDIA 01806 SAN FERNANDO-BN, SP. | 9006 11 15 | 13 24 20.30 | 23 16 30 -21 27 23 46 24 -22 51 | | | 434013 434013 434013 |
| 01810 CURACAO-BN, N.W.I. 01812 JUPITER-BN, FLA. | 9009 11 15 9010 11 15 | 23 51 37.50 23 52 03.14 | 20 58 18 25 17 23 29 24 -15 15 | | | 434013 434013 |
| 01805 ORGAN PASS-BN. N.M. 01818 MAUI-BN. HAWAII | 9001 11 16 9012 11 16 | 0 00 00.00 6 12 45.39 | 0 04 18 -17 16 22 36 12 26 58 | | | 434013 434013 |
| 01811 CURACAO-BN, NewsI. 01815 NAINI TAL-BN, INDIA | 9009 11 16 9006 11 16 | 8 50 32.22 14 35 02.65 | 7 35 18 -22 38 22 20 24 - 3 18 | | | 434013 434013 |
| 01817 JUPITER-BN, FLA. 01819 MAUI-BN, HAWAII | 9010 11 17 9012 11 17 | 1 03 26.18 6 10 23.08 | 23 04 18 9 33 22 42 12 9 46 | | | 434013 434013 |
| 01821 NAINI TAL-BN, INDIA 01820 SAN FERNANDO-BN, SP | 9006 11 17 | 13 36 50.52 19 54 41.00 | 1 09 06 3 10 0 13 12 -10 29 | | | 434013 434013 |
| 01822 ORGAN PASS-BN. N.M. 01825 MAUI-BN. HAWAI! 01824 CURACAO-BN. N.W.I. | 9001 11 18 9012 11 18 9009 11 18 | 2 09 11.50 6 22 36.93 22 59 41.68 | 23 35 06 -10 06 22 27 12 45 46 21 29 18 33 58 | | | 434013 434013 434013 |
| 01823 ORGAN PASS-BN, N.M. 01826 MAUI-BN, HAWAII | 9001 11 19 9012 11 19 | 1 06 36.20 5 20 08.45 | 23 09 48 -13 14 22 31 48 29 44 | | | 434013 434013 |
| 01829 NAINI TAL-BN. INDIA 01828 SAN FERNANDO-BN. SP. | 9006 11 19 • 9004 11 19 | 13 44 50•54 20 03 10•60 | 23 59 12 12 47 23 25 54 - 1 57 | | | 434013 434013 |
| 01830 DAYTON, OHIO 01831 CURACAO-BN, N.W.I. | 8557 11 20 9009 11 20 | 0 12 19•4 0 12 36•87 | 21 11 12 61 12 | 150 00 | 33 45 | 845301 434013 |
| 01827 ORGAN PASS-BN. N.M. 01843 MAUI-BN, HAWAII | 9001 11 20 9012 11 20 | 2 18 41•10 6 31 50•82 | 23 35 24 7 04 21 47 42 53 46 | | | 434013 |
| 01839 NAINI TAL-BN, INDIA 01840 NAINI TAL-BN, INDIA 01836 SAN FERNANDO-BN, SP | 9006 11 20 9006 11 20 9004 11 20 | 12 41 11.84 14 53 25.73 19 01 05.70 | 22 49 18 - 0 50 21 28 00 21 33 23 12 30 - 6 09 | | | 434013 434013 434013 |
| 01835 ORGAN PASS-BN, N.M. 01891 CHINA LAKE, CAL. | 9001 11 21 0098 11 21 | 1 16 16.00 3 27 13.6 | 23 12 18 - 1 31 | 180.00 | 40 31 | 434013 641302 |
| 01844 MAUI-BN, HAWAII 01837 SAN FERNANDO-BN, SP | 9012 11 21 | 5 29 55.30 20 12 14.20 | 22 30 00 45 41 23 07 48 7 29 | 180 00 | 60 33 | 434013 434013 |
| 01842 JUPITER-8N, FLA. 01845 MAUI-BN, HAWAII | 9010 11 22 9012 11 22 | 0 20 18.22 6 40 53.25 | 22 42 12 29 24 21 12 00 56 21 | | | 434013 434013 |
| 01850 TOKYO-BN, JAPAN 01848 MITAKA, JAPAN | 9005 11 22 0229 11 22 | 8 38 49.70 8 39 25.4 | 22 40 00 - 4 22 | 155 00 | 49 06 | 434013 845301 |
| 01838 SAN FERNANDO-BN, SP 01854 N. CANTON, OHIO 01841 CURACAO-BN, N.W.I. | • 9004 11 22 8544 11 22 9009 11 22 | 19 10 09 • 20 23 16 12 23 18 29 • 28 | 22 58 42 3 28 21 56 -12 30 20 34 06 54 32 | | | 434013 845001 434013 |
| 01846 ORGAN PASS-BN. N.M. | 9001 11 23 | 1 24 59.50 | 22 44 30 9 55 | | | 434013 845001 |
| 01893 DALLAS, TEXAS 01892 FT. WORTH, TEXAS 01894 CHINA LAKE, CAL. | 0129 11 23 0139 11 23 0098 11 23 | 1 28 12 1 28 37 3 36 55.5 | 23 22 18 36 23 47 20 | 180 00 00 | 70 58 12 | 645001 641302 |
| 01847 MAUI-BN. HAWAII 01851 NAINI TAL-BN. INDIA | 9012 11 23 9006 11 23 | 5 40 06 • 31 14 03 28 • 44 | 23 07 12 58 05 23 46 12 36 37 | | .0 20 12 | 434013 434013 |
| 01849 SAN FERNANDO-BN, SP 01852 JUPITER-BN, FLA. | • 9004 11 23 9010 11 24 | 20 22 08 • 60 0 29 21 • 63 | 23 36 54 15 59 22 23 00 39 03 | | | 434013 |
| 01895 CHINA LAKE, CAL. 01853 ORGAN PASS-BN, N.M. | 0098 11 24 9001 11 24 | 2 33 44.7 2 37 31.20 | 23 37 00 28 37 | 180 00 00 | 65 02 24 | 641302 434013 |
| 01896 FT. WORTH, TEXAS 01897 FT. WORTH, TEXAS | 0139 11 24 0139 11 24 9006 11 24 | 2 37 58.4 2 38 08.4 | 22 22 22 23 52 | 22 10 22 18 | 25 45 26 40 | 845301 845301 434013 |
| 01857 NAINI TAL-BN, INDIA 01904 SHIRAZ-BN, IRAN 01856 SAN FERNANDO-BN, SP | 9008 11 24 | 13 01 04.76 15 06 51.98 19 19 32.90 | 23 27 00 27 53 22 46 12 28 50 23 02 24 12 37 | | | 434013 434013 |
| 01898 ALBUQUERQUE. N.M. 01855 ORGAN PASS-BN. N.M. | 0103 11 25 9001 11 25 | 1 34 10•1 1 34 41•10 | 22 57 42 21 30 | 180 | 68 36 | 845302 434013 |
| 01859 JUPITER-BN: FLA: 01899 CHINA LAKE: CAL: | 9010 11 25 0098 11 25 | 1 39 26.33 3 46 29.1 | 21 08 24 40 29 | 180 00 00 | 76 39 00 | 434013 641302 |
| 01863 MAUI-BN, HAWAII 01866 NAINI TAL-BN, INDIA 01865 SAN FERNANDO-BN, SP | | 5 48 41.43 14 13 41.94 | 22 06 18 60 05 0 47 30 43 08 | | | 434013 434013 434013 |
| 01858 JUPITER-BN, FLA. | • 9004 11 25 9010 11 25 | 20 31 02 • 80 23 26 33 • 53 | 23 21 06 19 14 22 09 24 29 30 | | | 434013 |
| 01879 AIKEN, S.C. 01861 JUPITER-BN, FLA. | 6023 11 26 9010 11 26 | 0 39 19.3 0 39 26.67 | 23 28 24 27 30 23 04 36 47 59 | | | 634042 434013 |

| OBS NO STATION 01867 ORGAN PASS-BN, N.M. 01910 SPOKANE, WASH- 01868 MAUI-BN, HAWAII 01860 TOKYO-BN, JAPAN 01862 NAINI TAL-BN, INDIA 01880 AIKEN, SC. 01864 JUPITER-BN, FLA. | 9001 11 26 8142 11 26 9012 11 26 9012 11 26 9005 11 26 9006 11 26 6023 11 26 9010 11 26 | TIME 2 46 55.80 4 47 57.9 4 50 22.33 8 58 17.90 13 12 02.28 23 35 44.5 23 36 21.25 | R. A. 23 46 24 1 22 09 2 12 00 23 10 30 0 52 42 22 26 42 22 28 24 | DECL. 33 34 -12 39 44 50 16 16 36 36 21 21 40 05 | AZIMUTH | ALTITUDE | RANGE INDEX 434013 845001 434013 434013 434013 634042 434013 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| O1870 ORGAN PASS-BN. N.M. O1900 ALAMOGORDO, N.M. O1874 NAINI TAL-BN, INDIA | 9001 11 27 0102 11 27 9006 11 27 | 1 43 36.60 1 44 02 14 21 46.90 | 22 44 24 23 32 30 | 28 36 44 17 | 180 | 85 42 | 434013 845302 434013 |
| O1872 OLIFANTSFNTN-BN,S.AF O1968 WALNUT CREEK, CAL. O1901 SACRAMENTO, CAL. O1902 CHINA LAKE, CAL. O1869 ORGAN PASS-BN, N.M. O1876 MAUI-BN, HAWAII | 9002 11 28 8553 11 28 8517 11 28 0098 11 28 9001 11 28 9012 11 28 | 1 24 19.10 2 51 26.5 2 51 33.2 2 52 56.1 2 56 32.80 4 54 47.19 | 9 58 42 23 07 24 11 42 22 35 18 | 24 39 16 48 34 00 59 13 | 180 00 180 00 00 | 66 49 78 58 12 | 434019 641001 641301 641302 434013 434013 |
| 01912 VAN NUYS. CAL. 01871 ORGAN PASS-BN. N.M. 01971 WALNUT CREEK. CAL. 01969 WALNUT CREEK. CAL. 01911 SACRAMENTO. CAL. C1970 WALNUT CREEK. CAL. 01913 SAN JOSE. CAL. 01873 TOKYO-BN. JAPAN 01875 NAINI TAL-BN. INDIA | 0113 11 29 9001 11 29 8553 11 29 8556 11 29 8517 11 29 8517 11 29 8573 11 29 9005 11 29 9006 11 29 | 1 48 46 1 52 56-40 4 04 07 4 04 07-2 4 04 13-1 4 04 17-2 10 20 18-60 14 32 23-25 | 22 53 36 0 23 0 24 0 33 0 38 36 1 01 18 | 33 00 14 42 14 24 14 30 21 40 41 07 | 180 180 00 180 | 80 64 05 67 34 12 | 845301 434013 641001 845001 641302 845001 845301 434013 |
| O1919 DALLAS. TEXAS O1920 DALLAS. TEXAS O1920 DALLAS. TEXAS O1916 TERRE HAUTE. IND. O1921 DAYTON. OHIO O1922 DAYTON. OHIO O1923 AIKEN. S.C. O1914 W. PALM BEACH. FLA. O1975 W. PALM BEACH. FLA. O1915 W. PALM BEACH. FLA. O1915 W. PALM BEACH. FLA. O1918 A. SACRAMENTO. CAL. O1917 CHIMA LAKE. CAL. O1918 ALBUOUERQUE. N.M. O1918 ALBUOUERQUE. N.M. O1878 ORGAN PASS-BN. N.M. O1884 TOKYO-BN. JAPAN O1885 NAINI TAL-BN. INDIA O1883 WOOMERA-BN. AUSTR. O1927 AIKEN. S.C. O1927 STATE COLLEGE. PA. | 0129 11 30 0129 11 30 8127 11 30 8557 11 30 6557 11 30 6023 11 30 0016 11 30 9002 11 30 0016 11 30 9002 11 30 0098 11 30 9005 11 30 9005 11 30 9006 11 30 9003 11 30 9003 11 30 | 0 53 11.5 0 53 16 0 55 39.2 0 57 26.0 0 57 30.9 0 58 15.1 0 59 10 0 59 17.75 0 59 35 1 33 42.60 3 00 59.4 3 02 22.9 3 06 00.0 3 06 01.30 9 17 15.70 13 31 47.81 18 18 49.01 23 54 46.0 | 22 57 23 02 30 23 39 0 02 19 0 36 48 9 25 30 0 27 12 23 46 24 2 05 12 9 20 06 23 02 11 | 32 20 32 20 14 18 29 56 48 39 4 20 29 45 24 35 35 52 21 55 31 14 | 180 20 180 00 7 27 180 00 180 00 00 | 62 25 63 20 67 65 68 55 79 04 12 76 30 | 845001 845002 845302 845302 845301 434013 845301 434013 641302 845302 434013 434013 434013 434013 434013 |
| 01930 CHINA LAKE, CAL. 01886 ORGAN PASS-BN, Nome. 01931 ALBUQUERQUE, Neme. 01890 MAUI-BN, HAWAII 01905 TOKYO-BN, JAPAN 01983 SHIRAZ-BN, IRAN 01889 NAINI TAL-BN, INDIA | 0098 12 01 9001 12 01 0103 12 01 9012 12 01 9005 12 01 9008 12 01 9006 12 01 | 1 58 46.9 2 01 05.80 2 02 43.0 6 19 46.09 10 29 00.20 14 31 34.20 14 40 52.07 | 22 16 30 0 56 54 0 16 18 22 25 00 0 14 12 | 33 07 60 37 18 12 40 02 36 18 | 180 00 00 180 | | 641302 434013 845302 434013 434013 434013 |
| 01973 ALBUQUERQUE, Nome 01887 ORGAN PASS-BN, Nome 01972 WALNUT CREEK, CALe 01903 SACRAMENTO, CALe 02029 WHITTIER, CALe 02030 WHITTIER, CALe 01888 ORGAN PASS-BN, Nome 01909 MAUI-BN, HAWAII 01907 TOKYO-BN, JAPAN 01964 SHIRAZ-BN, IRAN | 0103 12 02 9001 12 02 8556 12 02 8556 12 02 0098 12 02 8566 12 02 9001 12 02 9001 12 02 9008 12 02 9008 12 02 | 0 58 58 0 58 60.28 3 10 15.9 3 10 25.2 3 11 43.6 3 11 50.5 3 12 46.6 3 15 02.20 5 15 23.94 9 25 28.50 15 46 01.00 | 22 28 12 23 41 00 0 18 30 23 56 00 23 14 48 0 47 06 | 33 13 17 36 22 36 60 38 24 26 35 30 | 180 00 180 00 180 00 180 00 00 131 36 | 82 06 67 20 82 30 75 41 24 75 54 | 845302 434013 845001 641302 845301 641302 845301 434013 434013 434013 |
| 01975 DAYTON, OHIO 01908 CURACAO-BN, Now.1. 01976 ALBUQUERQUE, Nom. 01906 ORGAN PASS-BN, Nom. 01928 MAUI-BN, HAWAII 01925 TOKYO-BN, JAPAN 01924 MITAKA, JAPAN 01977 ROCHESTER, Noy. 01984 CURACAO-BN, Now.1. | 8557 12 03 9009 12 03 0103 12 03 9001 12 03 9012 12 03 9005 12 03 0229 12 03 8564 12 03 9009 12 03 | 0 03 50.8 0 10 10.05 2 12 11.7 2 12 12.60 6 28 02.16 10 37 20.90 10 38 03.0 23 01 49.1 23 05 24.86 | 1 55 54 0 05 12 0 45 00 23 42 42 22 40 00 23 33 24 | 68 15 27 41 53 18 13 24 10 21 69 47 | 169 24 180 00 204 30 | 64 36 78 18 46 12 | 845302 434013 845302 434013 434013 845301 845301 845001 |
| 01978 DAYTON. OHID 01952 JUPITER-BN. FLA. 01955 SACRAMENTO. CAL. 02031 WHITTIER, CAL. 01986 CHIMA LAKE. CAL. 01932 ORGAN PASS-BN. N.M. 019326 MAUI-BN. HAWAII 01942 TOKYO-BN. JAPAN 01946 NAINI TAL-BN. INDIA 01936 WOOMERA-BN. AUSTR. 01939 SAN FERNANDO-BN. SP. | 8557 12 04 9010 12 04 8517 12 04 8558 12 04 9098 12 04 9011 12 04 9012 12 04 9005 12 04 9006 12 04 9008 12 04 9008 12 04 | 1 16 38.7 1 18 40.97 3 19 55.3 3 21 19.2 3 21 24.4 3 24 02.50 5 23 27.16 9 34 46.2 13 50 37.78 18 37 39.63 20 06 30.50 | 1 13 48 0 05 06 22 51 54 22 52 36 2 09 12 8 27 36 0 03 12 | 30 04 13 19 57 10 22 01 23 14 -20 29 8 10 36 24 | 180 35 180 00 180 00 180 00 00 189 54 | 52 44 62 11 74 48 68 19 12 75 24 | 845302 434013 641302 845501 641302 434013 434013 845301 434013 434013 434013 |
| 01953 JUPITER-BN, FLA. 01950 CURAÇAO-BN, N.W.I. | 9010 12 05 9009 12 05 | 0 16 12.14 0 19 54.73 | 1 05 36 1 59 24 | 61 35 | | | 434013 |

| OBS NO STATION 01995 WALNUT CREEK, CAL. | STA NO DATE 8556 12 05 | TIME 2 15 45.3 | R. A. 22 56 00 | DECL. 19 54 | AZIMUTH | ALTITUDE | RANGE INDEX 845002 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------------------|-------------------------|----------------------------|----------------------------------------------------------|
| 01996 WAINUT CREEK, CAL. 02006 SACRAMENTO, CAL. 01998 CHINA LAKE, CAL. 01935 ORGAN PASS-BN. N.M. 01988 MAUI-BN, HAWAII 01948 NAINI TAL-BN. INDIA 01993 SHIRAZ-BN. IRAN | 8556 12 05 8517 12 05 0098 12 05 9001 12 05 9012 12 05 9006 12 05 9008 12 05 | 2 15 54.0 2 16 01.0 2 17 34.2 2 21 32.80 6 35 14.36 12 44 18.48 14 50 10.36 | 23 55 36 22 51 36 23 31 30 33 56 00 | 19 42 22 55 44 28 38 21 35 13 | 180 00 180 00 00 | 69 46 77 23 24 | 434013 434013 434013 434013 |
| 01949 NAINI TAL-BN. INDIA 01943 TOKYO-BN. JAPAN 01940 SAN FERNANDO-BN. SP. 01965 PERTH, AUSIR. 01944 TOKYO-BN, JAPAN | 9006 12 05 9005 12 05 9004 12 05 0601 12 05 9005 12 05 0601 12 05 | 14 59 38.57 17 30 40.90 19 04 05.00 19 44 05.9 19 44 16.20 19 44 25.8 | 0 11 54 22 06 18 23 53 48 23 49 42 | 14 09 25 44 15 45 4 25 | 358 50 | 70 20 69 40 | 434013 434013 434013 641301 434013 |
| 01966 PERTH, AUSTR. 01951 CURACAO-BN, N.W.I. | 9009 12 05 | 23 15 54.16 | 0 45 42 | 65 02 | 40 00 | 69 40 | 641301 434013 |
| 01934 ORGAN PASS-BN. N.M. 02000 ALBUQUERQUE, N.M. 01954 JUPITER-BN. FLA. 02007 SAN JOSE, CAL. 02032 WHITTIER, CAL. 01933 ORGAN PASS-BN. N.M. | 9001 12 06 0103 12 06 9010 12 06 8573 12 06 8558 12 06 9001 12 06 | 1 17 36.10 1 17 39.5 1 27 16.52 3 28 29.5 3 31 04.7 3 33 30.30 | 0 31 06 0 10 36 | 30 34 19 46 1 05 | 180 00 180 180 00 | 79 48 58 04 48 63 30 | 434013 845302 434013 845301 845301 434013 |
| 01945 TOKYO-BN, JAPAN 01947 NAINI TAL-BN, INDIA 02008 SHIRAZ-BN, IRAN | 9005 12 06 9006 12 06 9008 12 06 | 9 44 23.50 14 00 59.51 16 04 56.55 | 23 46 48 2 29 48 0 52 54 | 13 04 8 31 15 03 | | | 434013 434013 434013 |
| 01956 CUPACAO-BN, N.W.I. 01999 CHINA LAKE, CAL. 01957 ORGAN PASS-BN, N.M. 01962 TOKYO-BN, JAPAN 01963 TOKYO-BN, JAPAN | 9009 12 07 0098 12 07 9001 12 07 9005 12 07 9005 12 07 | 0 29 55.09 2 26 07.0 2 31 01.00 8 43 44.60 10 57 18.80 | 2 05 48 0 03 54 0 35 12 0 32 00 | 50 27 12 36 14 33 -10 35 | 180 00 00 | 70 47 24 | 434013 641302 434013 434013 |
| 01959 NAINI TAL-BN, INDIA 01960 NAINI TAL-BN, INDIA 01958 WOOMERA-BN, AUSTR. 01967 PERIH, AUSTR. 01961 CURACAO-BN, N.W.I. | 9006 12 07 9006 12 07 9003 12 07 0601 12 07 9009 12 07 | 12 53 39.62 15 07 57.97 17 45 36.20 19 53 43.0 23 26 13.57 | 23 42 18 23 41 36 7 34 12 1 22 00 | 32 32 4 05 -19 24 56 30 | 180 00 | 89 00 | 434013 434013 434013 641301 434013 |
| 01980 JUPITER-BN. FLA. 01982 NAINI TAL-BN. INDIA 01985 SYDNEY. AUSTR. | 9010 12 08 9006 12 08 0602 12 08 | 1 37 10.80 14 07 45.22 16 47 26.3 | 0 42 54 0 56 18 8 07 | 2 14 7 00 - 2 36 | | | 434013 434013 845001 |
| 01987 CURACAO-BN, N.W.I. 01981 OLIFANTSFNTN-BN.S.AF 01991 TOKYO-BN, JAPAN 01992 NAINI TAL-BN, INDIA 01990 WOOMERA-BN, AUSTR. 02005 CURACAO-BN, N.W.I. | 9009 12 09 9002 12 09 9005 12 09 9006 12 09 9003 12 09 9009 12 09 | 0 37 16.73 1 10 22.50 8 48 06.20 13 03 06.03 17 55 11.85 23 36 29.58 | 0 06 54 6 26 06 22 20 24 23 49 36 7 45 30 1 38 24 | 43 56 -77 38 18 15 23 27 -42 29 44 24 | | | 434013 434023 434013 434013 434023 434013 |
| 01989 ORGAN PASS-BN, N.M. 01994 JUPITER-BN, FLA. 02003 TOKYO-BN, JAPAN 02004 NAINI TAL-BN, INDIA 02001 SAN FERNANDO-BN, SP. 02002 SAN FERNANDO-BN, SP. | | 1 36 08.90 1 45 41.01 10 01 43.70 14 14 03.55 18 17 00.90 20 34 15.80 | 23 13 42 0 04 24 23 17 48 23 18 12 22 53 48 23 56 42 | 15 37 - 8 11 - 1 50 5 45 13 56 -18 57 | | | 434013 434013 434013 434013 434013 434013 |
| 02064 CURACAO-BN, N.W.I. 02019 MAUI-BN. HAWAII 02014 TOKYO-BN. JAPAN 02011 WOOMERA-BN. AUSTR. 02018 JUPITER-BN, FLA. | 9009 12 11 9012 12 11 9005 12 11 9003 12 11 9010 12 11 | 0 47 51.92 7 07 08.36 8 58 23.90 18 04 46.78 23 38 05.14 | 0 57 36 0 48 42 22 55 48 8 16 48 23 04 36 | 21 15 -17 02 8 14 -52 33 22 28 | | | 434013 434013 434013 434023 434013 |
| 02009 ORGAN PASS-BN, N.M. 02020 MAUI-BN, HAWAII 02016 NAINI TAL-BN, INDIA 02013 SAN FERNANDO-BN, SP | 9001 12 12 9012 12 12 9006 12 12 9004 12 12 | 1 45 13.80 6 01 39.87 14 24 42.13 18 25 57.50 | 23 10 18 23 31 06 23 47 42 22 35 18 | 5 47 11 35 -11 20 6 21 | | | 434013 434013 434013 434013 |
| 02021 MAUI-BN, HAWAII 02015 TOKYO-BN, JAPAN 02017 NAINI TAL-BN, INDIA 02012 WOOMERA-BN, AUSTR, 02040 CINCINNATI, OHIO 02033 N. CANTON, OHIO | 9012 12 13 9005 12 13 9006 12 13 9003 12 13 0050 12 13 8572 12 13 | 4 58 07.52 9 08 40.70 13 20 58.63 18 14 13.54 23 47 04 23 49 16 | 23 18 18 22 58 42 23 22 54 8 21 00 23 36 00 23 39 | 25 17 - 1 12 2 51 -50 37 - 8 30 -14 00 | | | 434013 434013 434013 434023 845001 845001 |
| 02010 ORGAN PASS-BN: N:M. 02024 NAINI TAL-BN: INDIA 02023 WOOMERA-BN: AUSTR: | 9001 12 14 9006 12 14 9003 12 14 | 1 54 05.60 14 33 46.36 17 13 22.68 | 23 33 18 | - 3 43 -20 53 -47 25 | | | 434013 434013 434023 |
| 02025 OLIFANTSFNTN-BN,S.AI 02028 WOOMERA-BN, AUSTR. 02027 JUPITER-BN, FLA. | F 9002 12 15 9003 12 15 9010 12 15 | 1 39 59.97 18 23 41.18 23 57 05.87 | 8 27 30 | -79 19 -37 04 - 3 37 | | | 434023 434023 434013 |
| 02026 CURACAO-BN, N.W.I. 02034 OLIFANTSFNTN-BN,S.A | 9009 12 16 F 9002 12 16 | 0 04 20.56 0 37 52.44 | | - 1 54 -77 20 | | | 434013 434023 |
| 02036 NAINI TAL-BN, INDIA 02035 WOOMERA-BN, AUSTR. | 9006 12 17 9003 12 17 | 13 40 02.86 18 33 06.85 | | -21 25 -12 12 | | | 434013 434013 |
| 02037 JUPITER-BN. FLA. 02036 CURACAO-BN. N.W.I. 02039 ORGAN PASS-BN. N.M. 02046 SHIRAZ-BN. IRAN 02041 WOOMERA-BN. AUSTR 02049 CURACAO-BN. N.W.I. | 9010 12 18 9009 12 18 9001 12 18 9008 12 18 9003 12 18 9009 12 18 | 0 05 22.80 0 14 41.77 2 11 36.90 14 41 23.02 17 31 41.59 23 09 43.43 | 0 19 54 22 33 30 22 27 18 7 57 30 | -11 52 -22 59 -19 44 - 9 27 -36 09 - 1 04 | | | 434013 434013 434013 434013 434023 434013 |
| 02042 JUPITER-BN. FLA. | 9010 12 20 | | 22 38 36 | -23 03 | | | 434023 |

| OBS N | O STATION | STA NO | DATE | | TIME | R. A. | DECL. | A7 IMUTH | ALTITUDE | RANGE INDEX |
|-------|----------------------|--------|-------|----|------------|----------|--------|----------|----------|-------------|
| 02045 | OLIFANTSENTN-BN+S+AF | 9002 | 12 20 | 0 | 56 45.40 | 9 42 30 | -62 40 | | | 434023 |
| 02043 | SHIRAZ-BN. IRAN | 9006 | 12 20 | 14 | 49 24.09 | 22 01 18 | -15 49 | | | 434013 |
| | WOOMERA-BN. AUSTR. | 9003 | 12 22 | | 10 07-15 | 3 28 00 | 7 36 | | | 434013 |
| | WOOMERA-BN. AUSTR. | 9003 | 12 22 | | 24 21.12 | 4 29 12 | -27 32 | | | 434023 |
| 02050 | OLIFANTSFNTN-RN.S.AF | 9002 | 12 22 | 19 | 35 47.30 | 2 32 06 | -24 04 | | | 434023 |
| | WOOMERA-BN, AUSTR. | 9003 | 12 23 | 12 | 21 44.79 | 3 38 30 | -15 00 | | | 434013 |
| 02051 | OLIFANTSFNTN-BN.S.AF | 9002 | 12 23 | 20 | 48 26.80 | 3 31 18 | -55 27 | | | 434023 |
| 02053 | OLIFANTSENTN-BN.S.AF | 9002 | 12 21 | 21 | 07 25.60 | 4 21 30 | -61 40 | | | 434023 |
| 02054 | JUPITER-BN. FLA. | 9010 | 12 28 | 0 | 29 06.69 | 2 13 12 | 1 18 | | | 434013 |
| 02055 | OLIFANTSFNTN-BN.S.AF | 9002 | 12 28 | 20 | 04 41-10 | 3 23 18 | -58 19 | | | 434023 |
| 02057 | WOOMERA-BN. AUSTR. | 9003 | 12 29 | 12 | 49 44.94 | 4 03 06 | -40 09 | | | 434023 |
| 02056 | MAUI-BN. HAWAII | 9012 | 12 29 | 15 | 26 16.87 | 13 45 42 | -34 54 | | | 434023 |
| 02058 | OLIFANTSFNTH-BN.S.AF | 9002 | 12 29 | 21 | 16 59.80 | 5 03 24 | -57 21 | | | 434023 |
| 02059 | OLIFANTSFNTN-BN.S.AF | 9002 | 12 30 | 20 | 14 36.40 | 4 33 06 | -57 27 | | | 434023 |
| | CURACAD-BN. N.W.I. | 9009 | 12 31 | 9 | 16 46.93 | 12 57 30 | 13 17 | | | 434013 |
| 02062 | MAUI-BN. HAWAII | 9012 | 12 31 | 15 | 35 58 - 21 | 8 36 42 | ~ 8 05 | | | 434013 |
| 02061 | OLIFANTSFNTN-BN.S.AF | 9002 | 12 31 | 19 | 12 22.10 | 4 46 54 | -54 02 | | | 434023 |

1959 ALPHA 2 OBSERVATIONS FROM 1 JULY THROUGH 31 DECEMBER 1959

| OBS NO STATION | STA NO | DATE | TIME | R. A. | DECL. | AZIMUTH | ALTITUDE | RANGE INDEX |
|-------------------------------|--------|------|---------------|----------|--------|---------|----------|-------------|
| 01209 OLIFANTSFNTN-BN.S.AF | | 7 01 | 1 52 27.76 | 21 43 24 | -25 00 | | | 434023 |
| | | | | | | | | |
| 01212 JUPITER-BN. FLA. | 9010 | 7 01 | - 3 23 58+12 | 14 23 54 | 2 21 | | | 434013 |
| 01213 SACRAMENTO. CAL. | 8517 | 7 01 | 5 32 56.5 | 16 00 10 | -26 35 | | | 641041 |
| 01284 SACRAMENTO. CAL. | 8517 | 7 01 | 5 33 44.3 | 16 38 18 | -27 56 | | | 641041 |
| 01215 AREQUIPA-BN. PERU | | | | | | | | |
| | 9007 | 7 01 | 8 20 19.06 | 21 14 30 | ~38 33 | | | 434023 |
| 01214 VILLA DOLORES-BN.ARG | 9011 | 7 01 | 8 25 29.15 | 22 26 36 | -21 53 | | | 434013 |
| 01216 WOOMERA-BN. AUSTR. | 9003 | 7 01 | 16 58 34.68 | 23 03 12 | -10 23 | | | 434013 |
| 01217 WOOMERA-BN, AUSTR. | 9003 | 7 01 | 19 17 02.51 | 22 42 48 | -27 49 | | | 434023 |
| 01111 W00111111 Bit, 1105/110 | -005 | | 1, 1, 020,1 | | 2. 77 | | | 434023 |
| | | _ | | | | | | |
| 01218 OLJFANTSFNTN-BN.S.AF | 9002 | 7 02 | 1 39 35.67 | 21 24 00 | -25 00 | | | 434023 |
| 01220 JUPITER-BN. FLA. | 9010 | 7 02 | 3 12 09 • 08 | 14 00 00 | 0 35 | | | 434013 |
| 01219 OLIFANTSFNTN-BN.S.AF | 9002 | 7 02 | 4 01 38.58 | 22 03 30 | -38 55 | | | |
| | | | | | | | | 434023 |
| 01222 SACRAMENTO. CAL. | 8517 | 7 02 | 5 21 27•1 | 15 53 39 | -29 13 | | | 641001 |
| 01285 SACRAMENTO. CAL. | 8517 | 7 02 | 5 22 23.5 | 16 38 31 | -30 33 | | | 641041 |
| 01221 VILLA DOLORES-BN.ARG | 9011 | 7 02 | 10 38 40 - 00 | 0 35 36 | -35 25 | | | 434023 |
| 01227 WOOMERA-BN. AUSTR. | | | | | | | | |
| UIZZI WUUMERA-DNO AUSIKO | 9003 | 7 02 | 19 04 24.49 | 23 31 06 | -28 18 | | | 434023 |
| | | | | | | | | |
| 01226 OLIFANTSFNTN-BN.S.AF | 9002 | 7 03 | 1 28 31.6 | 21 44 12 | -29 04 | | | 434023 |
| 01266 SAN ANTONIO. TEXAS | 0096 | 7 03 | 2 57 37 | 15 09 | 6 30 | | | 845001 |
| 01229 SACRAMENTO. CAL. | | 7 03 | 5 09 51.5 | 15 39 27 | -31 54 | | | 641041 |
| | 8517 | | | | | | | |
| 01223 ORGAN PASS-BN. N.M. | 9001 | 7 03 | 5 10 35.09 | 13 19 06 | -16 47 | | | 434013 |
| 01283 SACRAMENTO, CAL. | 8517 | 7 03 | 5 11 02•6 | 16 38 16 | -33 04 | | | 641041 |
| 01236 MAUI-BN. HAWAII | 9012 | 7 03 | 7 19 32.52 | 16 06 48 | 42 43 | | | 434013 |
| | | | | | | | | |
| 01230 VILLA DOLORES-BN.ARG | | 7 03 | 8 01 12.99 | 22 23 00 | ~24 25 | | | 434023 |
| 01231 VILLA DOLORES-BN.ARG | 9011 | 7 03 | 10 26 22.01 | 0 31 36 | -35 06 | | | 434023 |
| 01228 WOOMERA-BN. AUSTR. | 9003 | 7 03 | 18 52 32.90 | 22 36 36 | -29 52 | | | 434023 |
| | | •- | | | | | | |
| 01224 OLIFANTSFNTN-BN.S.AF | 9002 | 7 04 | 1 16 55.4 | 21 54 18 | -31 39 | | | 434023 |
| | | | | | | | | |
| 01267 SAN ANTONIO. TEXAS | 0096 | 7 04 | 2 45 46.5 | 14 31 | 5 36 | | | 845001 |
| 01268 SAN ANTONIO. TEXAS | 0096 | 7 04 | 2 45 50.85 | 14 47 30 | 5 00 | | | 845001 |
| 01225 OLIFANTSFMTN-BN.S.AF | 9002 | 7 04 | 3 41 33.3 | 23 45 12 | -45 04 | | | 434023 |
| | | | | | | | | |
| 01269 SACRAMENTO. CAL. | 8517 | 7 04 | 4 59 11.7 | 16 15 02 | -35 01 | | | 641041 |
| 01270 SACRAMENTO, CAL. | 8517 | 7 04 | 4 59 34.1 | 16 32 20 | -35 19 | | | 641041 |
| 01232 VILLA DOLORES-BN.ARG | 9011 | 7 04 | 7 47 44.74 | 21 51 42 | -23 23 | | | 434023 |
| 01233 VILLA DOLORES-BN.ARG | | 7 04 | 10 14 58.55 | 0 51 42 | -33 35 | | | 434023 |
| DIESS VILLE DOCUMES - DATAMO | 7011 | , 04 | 10 14 30433 | 0 71 42 | -35 33 | | | 434023 |
| | | | | | | | | |
| 01286 FORT WORTH TEXAS | 0139 | 7 05 | 2 34 47.8 | 14 53 | -18 30 | | | 845001 |
| 01241 AREQUIPA-BN. PERU | 9007 | 7 05 | 7 35 24.97 | 22 43 54 | -50 19 | | | 434023 |
| 01234 VILLA DOLORES-BN.ARG | 9011 | 7 05 | 7 36 47.68 | 22 17 18 | -26 32 | | | 434023 |
| 01235 VILLA DOLORES-BN.ARG | | 7 05 | 8 01 19.02 | 0 51 36 | -34 50 | | | 434023 |
| 01235 VILLA DOLONES-DRIANG | 9011 | 7 00 | 9 01 14.05 | 0 21 30 | -34 30 | | | 434023 |
| | | | | | | | | |
| 01250 MAUI-BN. HAWAII | 9012 | 7 06 | 6 44 36.14 | 14 29 42 | 39 23 | | | 434013 |
| 01242 VILLA DOLORES-BN.ARG | 9011 | 7 06 | 7 24 39.78 | 22 16 06 | -27 35 | | | 434023 |
| 01240 AREQUIPA-BN. PERU | 9007 | 7 06 | 9 43 52.85 | 23 43 48 | -58 14 | | | 434023 |
| | | | | | | | | |
| 01243 VILLA DOLORES-BN.ARG | 9011 | 7 06 | 9 48 52.11 | 0 12 06 | -34 38 | | | 434023 |
| | | | | | | | | |
| 01244 OLIFANTSFNTN-BN.S.AF | 9002 | 7 07 | 0 44 52.6 | 23 42 48 | ~38 29 | | | 434023 |
| 01245 OLIFANTSFNIN-BN.S.AF | 9002 | 7 07 | 3 10 44.8 | 2 12 24 | -38 46 | | | 434023 |
| 01258 MAUI-BN. HAWALI | | | | 15 24 42 | 32 14 | | | 434013 |
| | 9012 | 7 07 | 6 33 35.16 | | | | | |
| 01251 VILLA DOLORES-BN.ARG | 9011 | 7 07 | 7 14 58.69 | 23 15 36 | -30 29 | | | 434023 |
| 01259 AREQUIPA-BN. PERU | 9007 | 7 07 | 9 33 23.60 | 22 51 36 | -56 30 | | | 434023 |
| 01253 WOOMERA-BN. AUSTR. | 9003 | 7 07 | 18 02 55.84 | 22 09 24 | -32 25 | | | 434023 |
| 01254 WOOMERA-BN. AUSTR. | | | 18 07 39.25 | 0 06 48 | -33 50 | | | 434023 |
| | 9003 | 7 07 | | | | | | |
| 01255 WOOMERA-BN. AUSTR. | 9003 | 7 07 | 20 12 41.08 | 19 29 00 | -21 20 | | | 434013 |
| 01256 WOOMERA-BN. AUSTR. | 9003 | 7 07 | 20 27 53.28 | 0 25 12 | -33 59 | | | 434023 |
| 01257 WOOMERA-BN, AUSTR. | 9003 | 7 07 | 20 38 56.29 | 3 53 06 | -15 06 | | | 434013 |
| | | | | | | | | |
| 01252 OLIFANTSFNTN-BN.S.AF | 9002 | 7 08 | 2 50 28.8 | 22 47 48 | -45 02 | | | 434023 |
| | | | | | - | | | |
| 01264 MAUI-BN. HAWAII | 9012 | 7 08 | 6 21 51.06 | 14 38 06 | 26 58 | | | 434013 |
| * | | | | | | | | |

| OBS NO STATION 01260 VILLA DOLORES-BN,ARG 01282 AREQUIPA-BN, PERU 01261 VILLA DOLORES-BN,ARG 01262 WOOMERA-BN, AUSTR. | STA NO DATE 9011 7 08 9007 7 06 9011 7 06 9003 7 08 9003 7 08 | 7 02 27.67 9 20 54.00 9 23 24.85 17 51 31.40 | R• A• 23 07 12 23 54 48 23 47 42 22 27 48 2 12 30 | DECL30 50 -58 17 -34 21 -33 52 -26 00 | AZIMUTH | ALTITUDE | RANGE INDEX 434023 434023 434023 434023 434023 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------|---------|----------|--------------------------------------------------------------------|
| 01297 MAUI-BN, HAWAII 01281 ARGUIIPA-BN, PERU 01291 WOOMERA-BN, AUSTR. 01292 WOOMERA-BN, AUSTR. 01293 WOOMERA-BN, AUSTR. 01294 WOOMERA-BN, AUSTR. 01295 WOOMERA-BN, AUSTR. | 9012 7 09 9007 7 09 9003 7 09 9003 7 09 9003 7 09 9003 7 09 | 9 07 44.99 17 40 51.09 17 47 30.18 19 53 57.32 20 02 44.04 | 13 35 24 23 03 18 23 07 42 1 28 00 20 47 24 0 09 36 2 52 48 | 26 23 -58 52 -34 48 -29 23 -30 19 -33 11 -19 31 | | | 434023 434023 434023 434023 434023 434023 434023 |
| 01296 JUPITER-BN. FLA. 01290 OLIFANTSFNTN-BN.S.AF 01304 MAUI-BN, HAWA!! 01301 WOOMERA-BN, AUSTR. 01302 WOOMERA-BN. AUSTR. | 9010 7 10 9002 7 10 9012 7 10 9003 7 10 9003 7 10 | 2 23 34.2 5 58 48.87 17 30 19.98 | 13 42 18 21 39 06 14 00 12 23 49 30 0 21 06 | -35 41 -44 12 16 08 -34 14 -31 49 | | | 434023 434023 434013 434023 434023 |
| 01300 OLIFANTSFNTN-BN.S.AF 01303 VILLA DOLORES-BN.SP. | 9002 7 1 9011 7 1 | | 21 45 36 23 10 24 | -44 55 -33 49 | | | 434023 434023 |
| 01299 OLIFANTSFNTN-BN.S.AF | 9002 7 12 | 2 01 55•1 | 23 00 30 | -45 28 | | | 434023 |
| 01298 OLIFANTSFNTN-BN,S.AF 01305 AREQUIPA-BN, PERU 01306 WOOMERA-BN, AUSTR. | 9002 7 13 9007 7 13 9003 7 13 | 8 18 30.15 | 22 33 12 22 57 06 23 29 48 | -45 47 -59 45 -31 24 | | | 434023 434023 434023 |
| 01310 AREQUIPA-BN. PERU 01309 WOOMERA-BN. AUSTR. | 9007 7 16 9003 7 16 | | 0 02 24 23 16 00 | -57 15 -31 03 | | | 434023 434023 |
| 01307 OLIFANTSFNTN-BN.S.AF 01308 OLIFANTSFNTN-BN.S.AF 01313 AREQUIPA-BN. PERU 01314 AREQUIPA-BN. PERU 01312 WOOMERA-BN. AUSTR. | 9002 7 1 9002 7 1 9007 7 1 9007 7 1 9003 7 1 | 3 47 43.8 7 54 07.38 10 20 06.14 | 22 41 18 0 01 36 23 00 30 1 10 42 23 04 48 | -45 25 -24 17 -60 00 -34 18 -30 32 | | | 434023 434023 434023 434023 434023 |
| O1311 OLIFTSFTN-BN. S.AF. O1315 AREQUIPA-BN. PERU O1316 AREQUIPA-BN. PERU O1316 WOOMERA-BN. AUSTR. O1318 WOOMERA-BN. AUSTR. | 9002 7 1 9007 7 1 9007 7 1 9003 7 1 9003 7 1 | 7 43 01.85 5 10 08 04.15 6 18 34 23.80 | | -44 16 -58 00 -31 51 -30 01 - 2 54 | | | 434023 434023 434023 434023 434013 |
| 01319 AREQUIPA-BN. PERU 01320 AREQUIPA-BN. +ERU 01323 WOOMERA-BN. AUSTR. 01324 WOOMERA-BN. AUSTR. | 9007 7 1 9007 7 1 9003 7 1 9003 7 1 | 7 9 55 37.32 7 18 22 28.14 | 0 19 18 1 06 54 22 57 36 0 21 54 | -54 43 -30 24 -28 33 - 1 28 | | | 434023 434023 434023 434013 |
| 01321 OLIFANTSFNTN-BN,S.AF 01325 WOOMERA-BN, AUSTR, 01326 WOOMERA-BN, AUSTR, | 9002 7 1 9003 7 1 9003 7 1 | 7 17 59 27.66 | | -19 04 -23 09 - 0 48 | | | 434013 434023 434013 |
| 01322 OLIFANTSFNTN-BN.S.AF 01327 WOOMERA-BN. AUSTR. | 9002 7 2 9003 7 2 | | 23 36 54 22 27 54 | -16 05 - 6 23 | | | 434013 434013 |
| 01328 OLIFANTSFNTN-BN.S.AF 01329 AREQUIPA-BN. PERU 01330 WOOMERA-BN. AUSTR. | 9002 7 2 9007 7 2 9003 7 2 | 9 05 07.31 | | -14 30 -26 26 2 46 | | | 434013 434023 434013 |
| 01333 OLIFANTSFNTN-BN,S.AF 01332 VILLA DOLORES-BN.ARG 01331 AREGUIPA-BN. PERU | | 2 8 51 04 93 | | -14 12 - 0 59 -25 53 | | | 434013 434013 434023 |
| 01334 OLIFANTSFNTN-BN.S.AF 01336 WOOMERA-BN. AUSTR. | 9002 7 2 9003 7 2 | | 1 33 06 23 06 48 | - 0 44 5 40 | | | 434013 434013 |
| 01335 OLIFANTSENTN-BN.S.AF 01339 WOOMERA-BN AUSTR. | 9002 7 2 9003 7 2 | | 23 07 48 22 54 18 | - 8 27 7 10 | | | 434013 434013 |
| 01337 OLIFNTSFNTN-BNS.AF 01342 VILLA DOLBN ARG. 01346 MAUI-BN. HAWAII | | 5 8 13 45 12 | 22 30 30 | | | | 434013 434013 434023 |
| 01343 VILLA DOLBN ARG. 01340 AREQUIPA-BN PERU 01341 AREQUIPA-BN PERU | 9011 7 2 9007 7 2 9007 7 2 | 6 8 02 34.00 | 23 23 18 | 8 29 -20 55 14 58 | | | 434013 434013 434013 |
| 01338 OLIFNTSFNTN-BN.,S.AF 01344 AREQUIPA-BN., PERU | 9002 7 2 9007 7 2 | | 23 32 24 23 56 36 | 4 05 -12 40 | | | 434013 434013 |
| 01345 OLIFNTSFNTN-BN. S.AF 01353 MAUI-BN. HAWAII | 9002 7 2 9012 7 2 | 8 3 27 51.1 | 22 49 30 | 21 57 -21 26 | | | 434013 434013 |
| 01351 AREQUIPA-BN. PERU 01347 OLIFNTSFNTN-BN. S.AF 01348 CURACAO-BN. N.W.I. 01354 MAUI-BN. HAWAII 01350 WOOMERA-BN. AUSTR. | 9007 7 2 9002 7 2 9009 7 2 9012 7 2 9003 7 2 | 9 3 15 16.0 9 7 33 06.70 9 14 09 30.42 | 22 36 36 1 18 00 1 52 42 | 23 12 -36 27 | | | 434023 434013 434023 434023 434013 |
| 01356 AREQUIPA-BN. PERU 01349 OLIFNISFNIN-BN. S.AF 01352 JUPITER-BN. FLA. 01372 MAUI-BN. HAWAII 01355 OLIFNISFNIN-BN. S.AF | 9010 7 3 9012 7 3 | 0 3 03 28.7 0 9 48 07.25 0 13 57 25.64 | 22 35 00 2 04 30 | 26 08 -19 40 -24 55 | | | 434023 434013 434013 434023 434023 |

| OBS NO STATION 01359 AREQUIPA-BN, PERU 01357 CURACAO-BN, N.W.I. 01358 CURACAO-BN, N.W.I. 01374 MAUI-BN, HAVAII 01361 OLIFNTSFNTN-BN, S.AF | STA NO 9007 9009 9009 9012 9002 | DATE 7 31 7 31 7 31 7 31 7 31 | TIME 0 01 38-90 7 09 34-26 9 31 41-19 13 45 41-58 17 21 14-6 | Re Ae 10 47 54 1 22 06 1 08 54 1 53 18 12 59 36 | DECL. -60 24 -30 44 6 01 -21 46 -23 37 | AZIMUTH | ALTITUDE | RANGE INDEX 434023 434023 434013 434013 434023 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------|-------------------------|------------------------------------------------------------------------------|
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| 01366 AREQUIPA-BN. PERU 01360 OLIFHTSFNTN-BN. S.AF 01371 VILLA DOLBN. ARG. | 9007 9002 9011 | 8 02 8 02 8 02 | 8 58 10.85 16 58 16.0 23 29 27.74 | 22 33 18 13 11 00 15 26 12 | 29 30 -39 30 - 5 43 | | | 434013 434023 434013 |
| 01379 SHIRAZ-RN. IRAN 01380 SHIRAZ-RN. IRAN 01367 CURACAO-BN. N.W.I. 01368 CURACAO-BN. N.W.I. 01375 ORGAN PASS-BN. N.M. 01377 MAUI-BN. HAWAII 01378 OLIFNTSFNTN-BN. S.AF 01396 SHIRAZ-BN. IRAN | 9008 9008 9009 9009 9001 9012 9002 9008 | 8 03 8 03 8 03 8 03 8 03 8 03 8 03 | 0 16 04+15 0 17 00-65 6 34 29+05 8 54 59+16 11 07 57+56 13 06 38+54 16 46 43+10 23 59 58+02 | 1 41 18 2 10 48 1 29 30 0 58 18 2 14 00 1 01 36 13 14 36 0 49 48 | ~16 25 ~11 19 ~20 55 14 10 ~ 9 17 ~25 22 ~46 03 ~23 03 | | | 434013 434013 434013 434013 434013 434023 434023 |
| 01397 SHIRAZ-BN. IRAN 01381 MAUI-BN. HAWAII 01382 MAUI-BN. HAWAII 01394 SHIRAZ-BN. IRAN 01395 SHIRAZ-BN. IRAN | 9008 9012 9012 9008 9008 | 8 04 8 04 8 04 8 04 8 04 | 0 04 11.15 12 55 54.34 15 17 12.43 23 49 36.65 23 51 18.66 | 1 58 36 1 21 00 1 15 06 0 58 00 1 47 12 | -11 10 -18 51 15 46 -18 20 -11 22 | | | 434013 434013 434013 434013 434013 |
| O1384 OLIFNTSFNTN-BN. S.AF O1385 AREQUIPA-BN. PERU O1386 JUPITER-BN. FLA. O1383 ORGAN PASS-BN. N.M. | 9002 9007 9010 9001 | 8 05 8 05 8 05 8 05 | 3 15 40+11 8 21 48+06 8 27 20+85 10 41 35+60 | 1 22 42 22 06 48 1 03 00 1 38 18 | -20 58 36 51 -16 54 -10 58 | | | 434013 434013 434013 434013 |
| 01387 JUPITER-BN, FLA. 01388 WOOMERA-BN, AUSTR. 01405 SHIRAZ-BN, IRAN 01406 SHIRAZ-BN, IRAN | 9010 9003 9008 9008 | 8 06 8 06 8 06 8 06 | 8 15 43.63 9 45 00.25 23 23 26.30 23 26 16.45 | 1 08 48 15 33 24 0 38 12 1 29 18 | -13 42 -38 31 -19 29 -10 12 | | | 434013 434023 434013 434013 |
| 01391 AREQUIPA-BN. PERU 01389 JUPITER-BN. FLA. 01390 ORGAN PASS-BN. N.M. | 9007 9010 9001 | 8 07 8 07 8 07 | 9 00 30.63 8 02 00.88 10 18 41.90 | 22 56 48 0 36 48 1 56 00 | 48 37 -18 33 - 4 25 | | | 434013 434013 434013 |
| 01393 SAN FERNANDO-BN. SP. 01398 CURACAO-BN. N.W.I. 01392 WOOMERA-BN. AUSTR. 01401 MAUI-BN. HAWAII 01434 SHIRAZ-BN. IPAN 01435 SHIRAZ-BN. IRAN | 9004 9009 9003 9012 9008 9008 | 8 08 8 08 8 08 8 08 5 08 6 08 | 3 38 02.80 7 50 51.19 9 21 30.37 14 25 59.00 23 00 45.35 23 00 57.28 | 1 57 18 23 25 18 14 54 42 0 16 12 1 01 36 1 05 18 | - 5 43 17 08 -41 40 18 57 -11 10 -10 30 | | | 434013 434013 434023 434013 434013 434013 |
| 01399 CURACAO-BN. N.W.I. 01509 ALBUQUERQUE, N.M. 01511 WHITTIER-D. CAL. 01512 WHITTIER-D. CAL. | 9009 0103 8566 8566 | 8 09 8 09 8 09 8 09 | 7 38 21.50 9 47 36.4 12 08 37.7 12 10 25.2 | 23 10 00 | 18 36 | 180 180 00 157 24 | 31 00 64 48 67 18 | 434013 845302 845301 845301 |
| 01402 MAUI-BN. HAWAII 01403 NAINI TAL-BN. INDIA 01404 NAINI TAL-BN. INDIA | 9012 9006 9006 | 9 10 8 10 8 10 | 14 01 49.53 20 25 35.05 22 45 25.46 | 0 14 42 1 11 12 1 13 00 | 24 29 -10 56 19 20 | | | 434013 434013 434013 |
| 01436 SHJRAZ-BN. JRAN 01437 SHJRAZ-BN. JRAN 01407 JUPITER-BN. FLA. 01408 JUPITER-BN. FLA. 01409 PERTH. AUSTR. 01410 PERTH. AUSTR. 01412 MAUI-BN. HAWAII 01428 SHJRAZ-BN. JRAN | 9008 9008 9010 9010 0601 0601 9012 9008 | 8 11 8 11 8 11 8 11 8 11 8 11 8 11 | 0 57 53.35 0 58 04.83 7 13 48.00 9 36 12.59 10 58 53.4 10 59 14.4 13 49 25.14 22 24 04.45 | 1 34 06 1 38 54 0 36 18 1 26 18 0 05 48 0 43 54 | 24 48 25 09 - 9 33 28 47 26 13 - 8 50 | 180 00 128 50 | 77 15 70 20 | 434013 434013 434013 434013 845301 845301 434013 434013 |
| O1411 SAN FERNANDO-BN. SP. 01413 ORGAN PASS-BN. N.M. 01789 PERTH. AUSTR. 01555 OLIFNTSFNTN-BN. S.AF | 9004 9001 0601 9002 | 8 12 8 12 8 12 8 12 | 2 45 37.40 9 14 53.50 10 47 09.5 17 18 02.40 | 0 37 24 0 52 18 11 19 12 | -11 47 - 6 03 -64 08 | 180 | 77 10 | 434013 434013 641301 434023 |
| 01538 SAN FERNANDO-BN. SP. 01416 CURACAO-BN. N.W.I. 01414 JUPITER-BN. FLA. 01417 CURACAO-BN. N.W.I. 01417 MAUI-BN. HAWAII 01415 OLIFANTSFNIN-BN.S.AF | 9004 9009 9010 9009 9012 9002 | 6 13 8 13 8 13 8 13 8 13 8 13 | 2 32 53.90 6 52 32.98 9 10 15.69 9 15 29.01 13 24 19.31 17 06 31.50 | 0 20 42 0 17 06 0 44 30 1 30 24 23 36 12 11 39 06 | -12 54 39 55 28 51 60 03 28 30 -68 30 | | | 434013 434013 434013 434013 434013 434023 |
| 01420 SAN FERNANDO-BN, SP. 01426 MITAKA. JAPAN 01431 MAUI-BN. HAWAII 01432 MAUI-BN. HAWAII 01421 OLIFNTSFNTN-BN. S.AF 01427 NAINI TAL-BN. INDIA | 0229 9012 9012 | 8 14 8 14 8 14 8 14 8 14 8 14 | 4 43 38.80 11 35 03.2 13 11 55.03 13 16 26.16 16 56 26.20 21 51 46.00 | 2 00 48 23 23 12 1 55 18 20 35 06 22 52 48 | 20 28 30 04 40 98 -61 09 11 90 | 159 48 | 60 36 | 434013 845301 434013 434013 434023 434013 |
| 01424 SAN FERNANDO-BN. SP. 01790 CINCINNATI. OHIO | 9004 0050 | 8 15 8 15 | 4 30 21.70 6 24 34 | 1 35 48 0 05 06 | 19 45 -25 28 | | | 434013 845001 |

| OBS NO STATION 01506 SMIPAZ-BN, IRAN 01507 SHIRAZ-BN, IRAN | STA NO DATE 9008 8 15 9008 8 15 | TIME 23 54 40.01 23 54 59.50 | R. A. 0 41 18 0 47 42 | DECL. 28 22 28 47 | AZIMUTH | ALTITUDE PANG | E INDEX 434013 434013 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------|------------------|-------------------------|--------------------------------------------------------------------|
| 01423 SAN FERNANDO-BN, SP. 01422 WOOMEPA-BN, AUSTR. 01429 MAUI-BN, HAWAII 01430 WAUI-BN, HAWAII 01425 TOKYO-BN, JAPAN | 9004 8 16 9003 8 16 9012 8 16 9012 9 16 9005 9 16 | 4 18 38.40 10 04 31.98 12 47 39.22 12 51 28.17 17 09 16.40 | 1 50 24 15 36 48 23 13 24 1 41 24 0 13 18 | 21 98 -16 01 35 96 42 50 4 53 | | | 434013 434013 434013 434013 434013 |
| 01672 SAN FEPNANDO-BN, SP. 01673 SAN FEPNANDO-EN, SP. 01438 CUPACAO-EN, Naw.1. 01438 WOOMEPA-BN, AUSTP. 01515 MAUJ-BN, HAWAII 01513 SHIPAZ-BN, IPAN 01514 SHIPAZ-BN, IPAN | | 1 46 35.10 4 05 38.70 8 24 09.96 9 52 32.13 12 35 47.31 23 30 20.74 23 30 41.96 | 1 02 00 1 30 24 0 09 06 14 52 54 23 19 24 0 38 24 0 51 06 | 2 39 20 43 63 17 -14 56 38 38 31 04 31 42 | | | 434013 434013 434013 434013 434013 434013 |
| 01505 SAN FERNANDO-BN, SP. 01504 WOOMERA-BN, AUSTR. 01768 SAN JOSE, CAL. | 9004 8 18 9003 8 18 0134 8 18 | 3 51 43.10 9 41 14.44 10 12 21.7 | 0 39 42 16 00 30 | 18 26 - 8 05 | 180 | 52 21 36 | 434013 434013 845301 |
| 01510 SAN FERNANDO-BN. SP. 01508 JUPITER-BN. FLA. 01646 SACRAMENTO. CAL. | 9004 8 19 9010 8 19 8517 8 19 | 3 40 04.90 7 56 15.09 12 25 17.2 | 0 55 42 0 11 48 | 20 01 37 27 | 180 00 | 72 55 | 434013 434013 641301 |
| 01601 WOOMERA-BN. AUSTP. 01647 CHINA LAKE, CAL. 01517 MAUI-BN. HAWAII | 9003 6 20 0098 6 20 9012 8 20 | 9 17 17.34 9 52 06.5 14 20 20.48 | 15 53 42 0 35 24 | - 2 23 56 40 | 180 00 | 65 30 | 434013 641302 434013 |
| 01518 SAN FERNANDO-BN, SP. 01648 CHINA LAKE, CAL. 01521 MAUI-BN, HAWAII 01519 OLIFNTSFNTN-BN, S.AF | 0098 8 21 9012 8 21 | 3 14 43.90 12 01 46.2 14 09 19.97 17 49 42.30 | 0 20 36 1 38 24 14 35 06 | 19 06 57 56 16 27 | 180 00 | 81 18 | 434013 641302 434013 434013 |
| 01649 CHINA LAKE, CAL. 01522 MAUI-BN, HAWAII | 0098 8 22 9012 8 22 | 11 49 13.4 13 54 02.29 | 23 54 42 | 58 07 | 180 00 | 80 48 | 641302 434013 |
| 01520 SAN FERNANDO-BN. SP. 01650 CINCINNATI. OHIO 01525 SAN JOSE, CAL. 01524 SACRAMENTO, CAL. 01523 MAUI-BN. HAWAII | 9004 8 23 0050 5 23 0134 8 23 8517 8 23 9012 8 23 | 2 50 40.80 9 29 41 11 31 37.1 11 35 10.5 13 44 16.24 | 0 27 18 3 04 36 1 15 18 | 20 13 16 25 59 48 | 180 180 00 | 74 30 00 70 50 | 434013 845001 845301 541301 434013 |
| 01651 FT. WORTH, TEXAS 01526 MAUI-BN, HAWAII 01527 OLIFANTSENTN-BN,S.AF 01530 AREQUIPA-BN, PERU | 0139 8 24 9012 8 24 9002 8 24 9007 8 24 | 9 10 04.6 13 31 43.75 17 14 36.60 23 46 38.05 | 0 51 0 59 00 14 33 06 19 39 00 | 33 55 60 50 24 34 9 05 | | | 845001 434013 434013 434013 |
| 01541 SHIRAZ-BN. IRAN 01542 SHIRAZ-BN. IRAN 01528 SAN FERNANDO-BN. SP. 01529 SAN FERNANDO-BN. SP. 01525 FT. WORTH. TEXAS 01532 JUPITEP-BN. FLA. 01531 MAUI-BN. HAWAII 01599 OLIFANTSFNTN-BN.S.AI | 9004 8 25 0139 8 25 9010 8 25 9012 8 25 | 0 25 08.70 0 25 14.05 4 42 31.20 4 45 55.10 8 57 35.2 9 03 38.66 13 20 02.31 17 02 06.50 | 1 36 24 0 34 1 40 48 0 50 00 | 36 57 36 49 19 26 19 52 33 45 43 56 33 12 17 39 | | | 434013 434013 434013 434013 845001 434013 434013 |
| 01653 FT. WORTH, TEXAS 01533 JUPITER-BN, FLA. 01534 SACRAMENTO. CAL. 01600 ORGAN PASS-BN, N.M. 01535 OLIFATSFNTN-BN, S.AI 01536 NAINI TAL-BN. INGI 01537 AREQUIPA-BN. PEPU | 0139 8 26 9010 8 26 8517 8 26 9001 8 26 9002 8 26 9006 8 26 9007 8 26 | 8 45 21.6 8 51 23.65 10 57 58.5 11 03 00.90 16 50 37.70 21 46 57.40 23 22 49.30 | 23 55 18 | 34 00 43 39 26 58 22 54 40 42 14 44 | 180 00 | 68 25 | 845001 434013 641301 434013 434013 434013 |
| 01547 SHIRAZ-BN. IRAN 01548 SHIRAZ-BN. IRAN 01654 SACRAMENTO. CAL. 01655 ALBUQUERQUE. N.M. 01543 MAUJ-BN. HAWAII 01540 TOKYO-BN. JAPAN 01539 MITAKA, JAPAN | 9008 8 27 9008 6 27 8517 8 27 0103 8 27 9012 8 27 9005 8 27 0229 8 27 | 10 45 38.9 10 51 00.1 15 17 11.16 17 14 19.20 | 1 39 36 | 36 18 35 57 36 07 23 29 | 180 00 180 00 | 67 20 74 12 78 12 | 434013 434013 641301 845302 434013 434013 845301 |
| 01544 CURACAQ-BN: N:W:I: 01545 MAUI-BN: HAWAII | 9009 8 28 9012 8 28 | | | 57 20 43 00 | | | 434013 434013 |
| O1550 CURACAO-BN, Nowel. O1546 ORGAN PASS-BN, Nome O1602 SHIRAZ-BN, IRAN O1603 SHIRAZ-BN, IRAN | 9009 8 29 9001 8 29 9008 8 29 9008 8 29 | 8 20 45.83 10 26 40.20 23 22 47.37 | 3 43 42 1 53 54 0 47 06 | 54 25 21 58 35 30 35 20 | | | 434013 434013 434013 434013 |
| 01549 SAN FERNANDO-BN; SP 01551 MAUI-BN; HAWAII | • 9004 8 30 9012 8 30 | | | 11 55 62 07 | | | 434013 434013 |
| 01667 JUPITER-BN, FLA. 01552 NAINI TAL-BN. INDIA | 9010 8 31 9006 8 31 | | | 5 50 3 03 | | | 434013 434013 |
| 01577 SMIRAZ-BN, IRAN 01578 SMIRAZ-BN, IRAN 01553 ORGAN PASS-BN, N.M. 01656 ALBUQUERQUE, N.M. 01554 MAUI-BN, HAWAII | 9008 9 01 9008 9 01 9001 9 01 0103 9 01 9012 9 01 | 1 18 44.01 9 48 27.20 9 49 20.5 | 1 57 24 | 20 35 | 180 00 | 66 06 | 434013 434013 434013 845302 434013 |
| 01579 SMIRAZ-BN, IRAN 01580 SMIRAZ-BN, IRAN | 9008 9 03 9008 9 03 | | | | | | 434013 434013 |

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| 01557 CURACAO-BN. N.W.I. 01581 SHIRAZ-RN. IRAN 01558 CURACAO-BN. N.W.I. 01559 CURACAO-BN. N.W.I. 01556 AREQUIPA-BN. PERU 01561 NAINI TAL-BN. INDIA | 9009 9008 9009 9009 9007 9006 | 9 03 9 03 9 03 9 03 9 03 9 03 | 0 20 21.28 0 53 03.87 7 18 06.68 9 40 37.75 9 47 39.38 22 29 52.42 | 17 40 24 1 14 06 2 41 06 3 21 06 5 32 48 0 58 18 | 32 20 - 0 49 58 19 7 46 32 58 2 20 | | | 434013 434013 434013 434013 434013 |
| 01563 CURACAO-BN, Newel. 01560 OLIFANTSFNTN-BN-S.AF 01572 SAN FERNANDO-BN, SP- 01564 CURACAO-BN, Newel. 01562 AREOUIPA-BN, PERU 01586 CURACAO-BN, Newel. | 9009 9002 9004 9009 9007 9009 | 9 04 9 04 9 04 9 04 9 04 9 04 | 0 08 06.66 3 09 03.60 5 01 53.20 9 27 38.93 9 34 08.28 23 56 04.76 | 16 20 48 6 08 18 1 18 54 3 00 06 5 27 12 15 43 48 | 27 16 29 07 -16 59 7 19 31 52 27 41 | | | 434013 434013 434013 434013 434013 |
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| 01598 SHIRAZ-BN. IRAN 01574 SAN FERNANDO-BN. SP. 01659 CINCINNATI, OHIO 01660 CINCINNATI, OHIO 01583 CURACAO-BN. N.W.I. 01575 AREQUIPA-BN. PERU 01590 VILLA DOLORES-BN. SP 01566 ORGAN PASS-BN. N.M. 01589 CURACAO-BN. N.W.I. | 9008 9004 0050 0050 9009 9007 9011 9001 9009 | 9 06 9 06 9 06 9 06 9 06 9 06 9 06 9 06 | 0 15 33.51 4 35 47.00 6 44 48 8 54 26 9 03 12.84 9 08 23.48 9 19 25.35 11 05 58.60 23 32 54.00 | 0 26 06 0 22 30 4 13 30 1 23 12 2 54 00 5 03 12 7 23 12 0 42 18 16 25 48 | ~ 6 27 ~17 42 ~15 22 ~21 30 0 28 32 03 11 21 ~15 51 50 08 | | | 434013 434013 845001 845001 434013 434013 434013 434013 |
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| 01662 BILOXI, MISS. 01570 SAN FERNANDO-BN, SP. 01598 CURACAO-BN, N.W.I. 01591 ORGAN PASS-BN, N.M. 01592 MAUI-BN, HAWAII 01593 WOOMERA-BN, AUSTR. | 0090 9004 9009 9001 9012 9003 | 9 08 9 08 9 08 9 08 9 08 9 08 | 1 34 52 4 14 38.30 8 37 27.71 10 47 48.10 15 07 42.30 19 38 28.34 | 1 30 06 2 07 00 1 01 48 1 12 36 5 05 48 | -29 51 - 0 48 -24 23 -20 27 27 14 | 180 | 34 30 | 845301 434023 434013 434023 434013 434013 |
| 01663 BILOXI, MISS. 01664 VAN NUYS, CAL. 01597 MAUI-BN, HAWAII 01594 CURACAO-BN, Nowel. 01604 MAUI-BN, HAWAII 01595 WOOMERA-BN, AUSTR. | 0090 0113 9012 9009 9012 9003 | 9 09 9 09 9 09 9 09 9 09 9 09 | 1 23 00 3 33 35 5 41 16.49 8 26 21.53 14 54 21.00 19 27 31.73 | 15 51 48 2 35 06 0 36 36 5 24 36 | 34 08 - 9 28 -19 14 22 06 | 180 180 | 37 45 00 26 | 845301 845301 434013 434013 434013 |
| 01665 VAN NUYS, CAL. 01605 MAUI-BN, HAWAII 01596 CURACAO-BN, Newel. 01607 MAUI-BN, HAWAII | 0113 9012 9009 9012 | 9 10 9 10 9 10 9 10 | 3 21 42 5 29 35.16 8 13 02.95 14 44 37.15 | 16 06 42 1 54 12 1 30 30 | 43 32 - 8 03 -30 36 | 180 | 28 15 00 | 845301 434013 434013 434023 |
| 01613 MAUI-BN, HAWAII 01608 AREQUIPA-BN, PERU 01611 NAINI TAL-BN, INDIA 01614 MAUI-BN, HAWAII 01610 WOOMERA-BN, AUSTR. | 9012 9007 9006 9012 9003 | 9 11 9 11 9 11 9 11 9 11 | 5 17 52-24 8 05 47-39 14 00 20-20 14 31 26-01 19 01 24-09 | 16 26 00 4 26 30 21 09 12 0 56 42 4 55 24 | 51 28 29 14 16 25 -30 03 23 40 | | | 434013 434013 434013 434023 434013 |
| 01609 ORGAN PASS-BN. N.M. 01615 MAUI-BN. HAWAII 01612 AREQUIPA-BN. PERU 01637 SHIRAZ-BN. IRAN | 9001 9012 9007 9008 | 9 12 9 12 9 12 9 12 | 3 00 42.73 5 06 17.64 7 53 01.64 15 59 04.35 | 20 37 06 17 24 06 4 11 48 21 05 42 | 15 51 61 23 30 10 13 53 | | | 434013 434013 434013 434013 |
| O1618 SAN FERNANDO-BN. SP. 01670 ALBUQUERQUE. N.M. 01616 AREGUIPA-BN. PERU 01617 AREGUIPA-BN. PERU 01619 SAN FERNANDO-BN. SP. | 0103 9007 9007 | 9 14 9 14 9 14 9 14 9 14 | 20 08 11.00 2 36 53.7 7 28 09.53 9 49 08.07 19 56 05.30 | 3 55 06 3 48 30 19 12 42 | -11 28 29 45 -19 22 -10 06 | 180 | 48 30 | 434013 845302 434013 434013 434013 |
| O1620 OLIFNTSFNTN-BN. S.AF O1621 V. DOLORES-BN. ARG. O1622 SAN FERNANDO-BN. SP. | 9011 | 9 15 9 15 9 15 | 3 09 07.80 7 20 33.64 19 43 51.50 | 4 18 00 4 56 12 18 29 18 | - 6 12 23 24 - 8 46 | | | 434013 434013 434013 |
| 01624 ORGAN PASS-BN. N.M. 01666 ALBUQUERQUE, N.M. 01627 SAN FERNANDO-BN. SP. | 9001 0103 9004 | 9 16 9 16 9 16 | 2 12 40.90 2 12 59.8 19 32 13.40 | 17 49 00 19 04 18 | 18 00 - 5 29 | 180 | 53 54 | 434013 845302 434013 |
| 01628 ORGAN PASS-BN, N.M. 01626 OLIFNTSFNTN-BN, S.AF 01629 AREQUIPA-BN, PERU 01630 SAN FERNANDO-BN, SP. | 9007 | 9 17 9 17 9 17 9 17 | 2 00 28.00 2 44 43.60 9 11 46.07 19 20 03.40 | 19 38 12 4 22 42 3 29 06 18 32 36 | 24 25 -11 27 -25 53 - 3 35 | | | 434013 434013 434023 434013 |
| 01631 TOKYO-BN. JAPAN 01634 OLIFNTSFNTN-BN. S.AF | 9005 | 9 18 9 19 | 10 32 10•30 2 19 48•70 | 19 42 00 4 12 12 | 7 05 -14 43 | | | 434013 434013 |
| | | | | | | | | |

| OBS NO STATION 01676 AREQUIPA-BN, PERU 01641 MITAKA, JAPAN 01643 TOKYO-BN, JAPAN 01635 WOOMERA-BN, AUSTR. | STA NO DATE 9007 9 19 0229 9 19 9005 9 19 9003 9 19 | TIME 8 46 40.64 10 20 04.9 10 20 08.40 19 44 16.53 | R• A• DECL. 3 05 30 -29 5. 19 26 18 7 5. 5 37 54 -22 1 | 183 48 | ALTITUDE RANGE | 434023 845301 434013 434013 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|----------------------|----------------------------------------------------------------------------------------------------------------------|
| O1839 AIKEN. S.C. O1632 MAUI-BN. HAWAII O1642 MITAKA, JAPAN O1644 TOKYO-BN. JAPAN | 6023 9 20 9012 9 20 0229 9 20 9005 9 20 | 1 29 40.2 5 48 26.36 10 07 57.8 10 08 09.80 | 17 24 53 21 44 3 20 00 84 5 19 21 54 8 3 | l 193 48 | 62 48 | 634042 434013 845301 434013 |
| 01687 ST.LOUIS, MO. 01688 ST.LOUIS, MO. 01755 TERRE HAUTE, IND. 01671 BILDXI, MISS. 01686 NORTH CANTON, OHIO 01840 AIKEN, S.C. 01633 OLIFNTSFNIN-BN. S.AF 01689 SAN DIEGO, CAL. 01638 V. DOLORES-BN. ARG. 01640 MITAKA, JAPAN 01639 TOKYO-BN. JAPAN 01645 NAINI TAL-BN. INDIA 01763 SHIRAZ-BN, IRAN | 0140 9 21 0140 9 21 8127 9 21 0090 9 21 0053 9 21 9002 9 21 0133 9 21 9011 9 21 0229 9 21 9006 9 21 9008 9 21 | 1 16 38.7 1 16 43.2 1 16 51 1 16 59 1 18 33 1 18 35.2 1 54 04.52 3 27 41 8 26 18.32 9 56 04.5 9 56 23.10 14 17 07.00 16 27 33.41 | 19 10 42 - 8 2 19 19 00 - 8 3 19 52 - 20 5 19 48 15 21 3 3 32 54 -14 4 18 57 32 3 4 18 48 -11 1 19 46 12 8 2 20 13 36 60 5 17 45 06 53 1 | 0 180 0 2 2 2 2 6 6 0 183 36 | 39 00 00 64 15 00 | 845001 845001 845301 845301 845001 634042 434013 845001 434013 845301 434013 434013 |
| 01690 BILOXI, MISS. 01796 TERRE HAUTE, IND. 01841 AIKEN, S.C. 01766 VAN NUYS, CAL. 01683 SAN DIEGO, CAL. | 0090 9 22 8127 9 22 6023 9 22 0113 9 22 0133 9 22 | 1 04 58 1 05 17.6 1 06 35.3 3 15 29 3 15 40 | 19 16 16 -12 2 19 40 12 20 4 18 58 31 3 | 3 180 | 66 75 | 845301 845001 634042 845301 845001 |
| 01684 BILOXI, MISS. 01767 CINCINNATI, OHIO 01681 N. CANTON, OHIO 01682 SAN DIEGO, CAL. 01668 ORGAN PASS-BN, N.M. 01669 VILLA DOLORES-BN, ARG | 0090 9 23 8555 9 23 8536 9 23 0133 9 23 9001 9 23 9011 9 23 | 0 52 55 0 54 00 0 54 38•5 3 03 42 3 05 27•00 8 01 32•47 | 19 19 00 -12 0 19 33 -20 4 19 05 30 17 58 48 20 2 4 13 30 -13 3 | 2 4 | 67 | 845301 845001 641001 845001 434013 |
| 01842 AIKEN. S.C. 01769 NORTH CANTON. OHIO 01768 NORTH CANTON. OHIO 01770 STATE COLLEGE, PA. 01674 OLIFANTSFNTN-BN.S.AF 01771 SAN DIEGO, CAL. 01675 AREQUIPA-BN. PERU 01678 MOOMERA-BN. AUSTR. 01679 SAN FERNANDO-BN. SP. | 0133 9 24 9007 9 24 9003 9 24 | 0 42 32.4 0 42 42.4 0 42 43.5 0 43 21 1 16 50.20 2 51 50 7 45 50.23 18 38 52.92 20 12 48.00 | 19 24 12 19 0 19 33 -20 1 19 25 30 -20 1 3 09 18 -19 2 19 21 28 3 3 13 24 -47 0 3 44 06 -20 2 19 06 12 -12 4 | 8 2 180 5 0 7 8 | 28 | 634042 845001 845001 845301 434013 845001 434023 434013 |
| 01843 AIKEN, S.C. 01677 ALBUQUERQUE, N.M. | 6023 9 25 0103 9 25 | 0 30 29•5 2 42 10•4 | 19 16 10 18 1 | 4 180 | 49 42 | 634042 845302 |
| 01738 OLIFNTSFNTN-BN, S.AF 01764 ALBUQUERQUE, N.M. 01740 V. DOLORES-BN, ARG. 01742 AREQUIPA-BN, PERU 01784 SHIRAZ-BN, IRAN 01785 SHIRAZ-BN, IRAN 01741 WOOMERA-BN, AUSTR. 01739 SAN FERNANDO-BN, SP. | 0103 9 26 9011 9 26 9007 9 26 9008 9 26 9008 9 26 9003 9 26 | 9 42 27.84 15 27 50.17 15 29 50.48 18 13 59.26 | 3 43 48 -27 1 3 32 18 -13 4 5 02 18 -64 5 20 00 12 43 2 23 56 54 15 5 3 29 24 -22 1 18 52 18 -12 3 | 180 6 2 0 3 8 | 49 18 | 434023 845302 434013 434023 434013 434013 434013 |
| 01737 OLIFNTSFNIN-BN, S.AF 01743 V. DOLORES-BN, ARG. 01744 WOOMERA-BN, AUSTR. 01745 SAN FERNANDO-BN, SP. | 9011 9 28 9003 9 28 | 7 02 04 • 23 17 49 11 • 93 | 6 09 54 -22 3 3 14 18 -24 2 | 3 20 | | 434023 434013 434023 434013 |
| O1747 SAN FERNANDO-BN, SP. O1746 OLIFANTSFNTN-BN,S.AF O1754 MAUI-BN, HAWAII O1751 NAINI TAL-BN, INDIA O1749 WOOMERA-BN, AUSTR. | | 2 22 51.40 6 05 06.26 14 43 36.25 | 4 16 18 -52 1 18 32 48 49 1 16 40 30 - 2 5 | 10 17 | | 434013 434023 434013 434013 434023 |
| 01748 OLIFNTSFNTN-BN, S.AF 01750 AREGUIPA-BN, PERU 01753 NAINI TAL-BN, INDIA 01752 WOOMERA-BN, AUSTR. | 9002 10 01 9007 10 01 9006 10 01 9003 10 01 | 8 39 34.94 14 33 09.27 | 3 17 48 -73 1 18 11 18 -19 1 | 17 | | 434023 434023 434013 434023 |
| 01776 DALLAS, TEXAS 01758 OLIFNTSFNTN-BN, S.AF 01761 MAUI-BN, HAWAII 01760 AREQUIPA-BN, PERU 01759 WOOMERA-BN, AUSTR. | 0129 10 03 9 9002 10 03 9012 10 03 9007 10 03 9003 10 03 | 1 45 22.70 5 29 09.47 8 12 45.55 | 19 10 06 33 (0 50 18 -70 (| 24 00 00 | | 845001 434023 434013 434023 434023 |
| 01757 OLIFNTSFNTN-BN, S.A! 01765 MAUI-BN, HAWAII 01762 AREQUIPA-BN, PERU | F 9002 10 05 9012 10 05 9007 10 05 | 5 05 32.85 | 19 49 24 17 | 13 | | 434023 434013 434023 |
| 01772 OLIFNTSFNIN-BN. S.AI 01773 AREQUIPA-BN. PERU | | | 2 53 00 -60 5 06 48 -78 | | | 434023 434023 |
| 01775 CURACAO-BN. N.W.I. 01774 OLIFNTSFNTN-BN, S.AI 01777 WOOMERA-BN, AUSTR. | 9009 10 00 F 9002 10 00 9003 10 00 | 0 44 12 40 | 4 28 06 -59 | 45 | | 434013 434023 434023 |
| 01780 AREQUIPA-BN, PERU 01779 WOOMERA-BN, AUSTR. | 9007 10 16 9003 10 16 | | | | | 434023 434023 |

| OBS NO STATION 01781 CURACAO-BN. N.W.I. | STA NO DATE 9009 10 10 | TIME 23 38 49.98 | R. A. 18 09 30 | DECL. | AZ IMUTH | ALTITUDE RANG | E INDEX 434023 |
|----------------------------------------------------------------------------------|----------------------------------------|------------------------------------------|----------------------|------------------|-----------------|-------------------|----------------------------|
| 01778 OLIFANTSFNTN-BN+S.AF 01782 CURACAO-BN, N.W.I. | 9002 10 12 9009 10 12 | 2 12 49•20 23 15 21•11 | 4 05 12 18 45 30 | -25 38 -36 41 | | | 434023 434023 |
| 01783 WOOMERA-BN. AUSTR. | 9003 10 13 | 19 21 02•41 | 3 56 18 | 5 00 | | | 434013 |
| 01787 OLIFANTSFNTN-BN.S.AF 01791 WOOMERA-BN. AUSTR. | 9002 10 15 9003 10 15 | 1 36 09•08 18 57 30•67 | 3 54 24 4 24 12 | -17 15 15 05 | | | 434013 434013 |
| 01793 APEQUIPA-BN. PERU 01792 WOOMERA-BN. AUSTR. | 9007 10 17 9003 10 17 | 7 42 49.00 18 31 44.46 | 6 12 18 3 11 00 | -37 09 16 11 | | | 434023 434013 |
| 01794 WOOMERA-BN+ AUSTR+ | 9003 10 20 | 11 01 20.79 | 18 57 06 | 15 13 | | | 434013 |
| 01795 OLIFANTSFNTN-BN.S.AF 01798 AREQUIPA-BN. PERU | 9002 10 21 9007 10 21 | 17 17 40.60 23 45 46.98 | 20 13 42 18 22 48 | - 3 51 -43 26 | | | 434013 434023 |
| 01796 CURACAO-BN: N:Weis 01797 WOOMERA-BN: AUSTR: | 9009 10 22 9003 10 22 | 9 05 40•49 10 39 29•17 | 7 25 00 21 51 00 | -11 33 - 5 10 | | | 434013 434013 |
| 01811 PERTH. AUSTR. | 0601 10 24 | 12 27 49.0 | | | 0 00 | 63 50 | 641301 |
| 01799 ADELAIDE. AUSTR. 01822 SYDNEY. AUSTR. | 0600 10 25 0602 10 25 | 10 03 22.5 10 06 31 | 22 16 | 22 | 1 | 50 30 | 845301 845001 |
| 01812 PERTH. AUSTR. 01813 PERTH. AUSTR. | 0601 10 25 0601 10 25 | 12 15 38.4 12 15 45.7 | | | 360 00 52 40 | 86 20 85 10 | 641301 641301 |
| 01814 PERTH. AUSTR. | 0601 10 25 | 12 16 25.9 | | | 93 00 | 64 00 | 641301 |
| 01800 JUPITER-RN. FLA. 01823 PERTH. AUSTR. 01801 MAUI-BN. HAWAII | 9010 10 26 0601 10 26 9012 10 26 | 10 33 45.64 12 03 27.2 14 49 52.45 | 7 31 36 7 31 00 | 1 42 | 0 00 | 88 10 | 434013 641301 434013 |
| 01804 SYDNEY. AUSTR. 01837 PERTH. AUSTR. | 0602 10 27 0601 10 27 | 9 42 09•9 11 51 14•4 | 22 24 | -20 | 0 00 | 89 20 | 845001 641301 |
| 01838 PERTH. AUSTR. 01803 OLIFANTSFNTN-BN.5.AF | 0601 10 27 | 11 51 41.6 18 23 56.20 | 2 38 00 | -69 D6 | 97 00 | 76 20 | 641301 434023 |
| 01802 CURACAO-BN, N.W.I. | 9009 10 28 | 7 51 13.85 | 6 41 18 | 0 42 | | | 434013 |
| 01805 PERTH+ AUSTR+ | 0601 10 28 | 11 39 21.5 | | | 104 40 | 80 15 | 641301 |
| 01806 SAN FERNANDO-BN. SP. 01807 ADELAIDE. AUSTR. 01808 WOOMERA-BN, AUSTR. | 9004 10 29 0600 10 29 9003 10 29 | 5 41 29.10 11 30 53 11 31 00.63 | 8 29 24 20 38 30 | 3 05 -43 19 | 292 | 49 30 | 434013 845301 434023 |
| 01820 JUPITER-BN, FLA. 01819 CURACAO-BN, N.W.I. | 9010 10 31 | 9 31 30.61 9 32 24.18 | 7 07 00 | 9 12 | | | 434013 |
| 01816 WOOMERA-BN, AUSTR. 01852 ADELAIDE, AUSTR. | 9009 10 31 9003 10 31 0600 10 31 | 11 07 18.25 | 4 50 42 22 44 12 | 52 26 -44 46 | | 40.30 | 434013 434023 |
| 01815 OLIFANTSFNTN-BN.S.AF 01817 TOKYO-BN. JAPAN | 9002 10 31 9005 10 31 | 17 34 01•07 18 09 33•70 | 21 11 30 7 43 12 | -70 20 -16 20 | 2 | 69 30 | 845301 434023 434013 |
| 01818 AREQUIPA-BN. PERU | 9007 11 01 | 0 02 59.13 | | -86 40 | | | 434023 |
| 01844 W. PALM BEACH, FLA. 01845 W. PALM BEACH, FLA. | 0016 11 01 0016 11 01 | 9 19 01 9 19 14 | | | 157 147 | 74 74 | 845301 845301 |
| 01846 CHINA LAKE, CAL. 01847 ALBUQUERQUE, N.M. | 0098 11 01 0103 11 01 | 11 26 31.8 11 30 30.0 | | | 180 00 180 | 30 37 12 51 24 | 641302 845302 |
| 01821 JUPITER-BN. FLA. | 9010 11 02 | 9 06 29.66 | 6 45 42 | 11 03 | | | 434013 |
| 01848 ALBUQUERQUE. N.M. | 0103 11 02 | 11 18 03.6 | | | 180 | 50 54 | 845302 |
| 01864 SYDNEY. AUSTR. 01824 WOOMERA-BN. AUSTR. | 0602 11 03 | 10 34 07.9 | 23 29 | - 0 18 | | | 845001 |
| 01853 ADELAIDE, AUSTR. 01865 SYDNEY, AUSTR. | 9003 11 04 0600 11 04 0602 11 04 | 10 18 14.34 10 18 44 10 21 58.4 | 22 10 36 | ~38 56 1 | 2 | 69 30 | 434023 845301 845001 |
| 01836 FT. WORTH, TEX. 01854 PERTH, AUSTR. | 0139 11 04 0601 11 04 | 10 56 08 12 31 06 0 | 7 17 | 18 00 | 0 00 | 74 45 | 845001 641301 |
| 01826 TOKYO-BN. JAPAN | 9005 11 04 | 19 38 47-10 | 8 29 06 | 19 51 | 0 00 | 14 43 | 434013 |
| 01825 SAN FERNANDO-BN. SP. 01866 SYDNEY. AUSTR. | 9004 11 05 0602 11 05 | 4 12 58.90 10 09 32.8 | 7 19 30 22 59 | 0 24 0 | | | 434013 845001 |
| 01855 PERTH. AUSTR. 01830 MAUI-BN. HAWAII | 0601 11 05 9012 11 05 | 12 18 49.5 15 05 21.33 | 7 34 30 | 63 14 | 0 00 | 72 45 | 641301 434013 |
| 01827 OLIFANTSFNTN-BN.S.AF 01828 MITAKA. JAPAN | 9002 11 05 0229 11 05 | 18 49 52.30 19 25 26.9 | 21 09 12 | -36 18 | 171 00 | 72 06 | 434023 845301 |
| 01829 TOKYO-BN. JAPAN 01867 SYDNEY. AUSTR. | 9005 11 05 | 19 26 12•20 9 57 31 | 8 23 18 25 11 | 19 50 | | | 434013 845001 |
| 01856 FT. WORTH. TEXAS 01918 VAN NUYS: CAL. | 0602 11 06 0139 11 06 0113 11 06 | 10 31 10.4 12 43 00 | 7 00 30 | 19 18 | 180 | 81 | 845001 845301 |
| 01857 FT. WORTH. TEXAS | 0139 11 07 | 10 18 42+2 | 6 51 | 20 00 | 180 00 | B0 04 | 845001 |
| 01858 DAYTON: OHIO 01892 SPOKANE: WASH: 01833 TOKYO-BN: JAPAN | 8557 11 07 8142 11 07 9005 11 07 | 10 22 35.9 12 32 30.5 19 01 10.70 | 8 14 42 | 19 39 | 180 00 180 | 58 06 36 06 | 845301 845301 434013 |
| 01859 CINCINNATI, OHIO | 8555 11 08 | 10 10 05 | 7 39 36 | 9 27 | | | 845001 |
| 01860 DAYTON. OHIO 01861 ROCHESTER. N.Y. | 8557 11 08 8564 11 08 | 10 10 14.2 10 12 18.2 | 8 17 24 | 3 06 | 178 18 | 57 45 | 845301 845001 |
| 01831 WOOMERA-BN, AUSTR. 01862 CHINA LAKE, CAL. | 9003 11 08 0098 11 08 | 11 45 50.43 12 19 42.0 | 21 20 06 | 11 13 | 180 00 | 74 49 12 | 434013 641302 |
| 01835 MITAKA, JAPAN 01834 TOKYO-BN, JAPAN | 0229 11 08 9005 11 08 | 18 47 51.9 18 48 26.90 | 7 56 06 | 19 02 | 170 54 | 71 30 | 845301 434013 |
| 01832 JUPITER-BN. FLA. | 9010 11 09 | 9 58 39.72 | 7 25 30 | 54 26 | | | 434013 |

| OBS NO STATION 01868 CHINA LAKE, CAL. 01869 FT. WORTH. TEXAS | STA NO DATE 0098 11 09 0139 11 09 | TIME 12 07 12.5 12 13 27.4 | R. A. 8 58 | 32 00 | AZIMUTH 180 00 | ALTITUDE RANG 74 33 36 | E INDEX 641302 845001 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------|-------------------------------------|-------------------------------|-------------------------------|----------------------------------------------------------|
| 01881 SHIRAZ-BN, IRAN 01850 WOOMERA-BN, AUSTR, 01893 SPOKANE, WASH, 01870 FT, WORTH, TEXAS | 9008 11 10 9003 11 10 8142 11 10 0139 11 10 | 1 07 54.53 11 21 14.74 11 55 33.0 12 00 51 | 7 01 00 21 21 00 7 21 40 8 51 25 | 45 48 13 16 -11 30 31 40 | | | 434013 434013 845001 845001 |
| 01851 WOOMERA-BN, AUSTR. 01884 ALAMOGORDO, N.M. | 9003 11 11 0102 11 11 | 11 09 09•39 11 45 46 | 21 27 54 | 15 14 | 0 | 89 18 | 434013 845302 |
| O1878 SHIRAZ-BN, IRAN O1883 CHINA LAKE, CAL. O1849 ORGAN PASS-BN, N.M. O1863 OLIFANTSFNTN-BN,S.AF | 9008 11 12 0098 11 12 9001 11 12 9002 11 12 | 0 41 44.58 11 31 43.5 11 32 55.30 17 24 20.72 | 5 49 12 7 43 42 21 43 42 | 45 52 35 34 ~16 33 | 112 43 12 | 58 01 48 | 434013 641302 434013 434013 |
| 01877 TOKYO-BN: JAPAN | 9005 11 13 | 20 03 52.90 | 8 10 54 | 14 34 | | | 434013 |
| 01872 SAN FERNANDO-BN. SP. 01879 JUPITER-BN. FLA. 01880 MAUI-BN. HAWAII 01873 MITAKA. JAPAN 01875 TOKYO-BN. JAPAN | 9004 11 14 9010 11 14 9012 11 14 0229 11 14 9005 11 14 | 4 39 03.80 8 57 53.06 15 32 12.71 19 51 49.9 19 52 09.50 | 7 24 42 9 31 24 8 42 12 8 44 24 | 16 27 54 29 63 18 11 06 | 185 54 | 65 42 | 434013 434013 434013 845301 434013 |
| O1885 DAYTON, OHIO O1886 CHINA LAKE, CAL. O1874 MITAKA, JAPAN O1876 TOKYO-EN, JAPAN | 8557 11 15 0098 11 15 0229 11 15 9005 11 15 | 11 02 10.0 13 11 40.0 19 39 03.9 19 39 29.80 | 8 27.48 | 9 17 | 180 00 180 00 00 193 42 | 45 24 60 13 48 63 42 | 845301 641302 845301 434013 |
| O1871 ORGAN PASS-BN, NºM. O1887 CHINA LAKE, CAL. O1882 MAUI-BN. HAWATI | 9001 11 16 0098 11 16 9012 11 16 | 10 44 33.10 12 59 08.9 15 08 52.40 | 9 07 42 | 28 41 53 11 | 180 00 00 | 57 54 00 | 434013 641302 434013 |
| 01895 N. CANTON. 0H10 | 8536 11 18 | 10 25 35 | 8 45 | -15 15 | | | 641001 |
| 01896 FT. WORTH. TEXAS 01897 N. CANTON: OHIO 01888 NAINI TAL-BN: INDIA | 0139 11 19 8544 11 19 9006 11 19 | 10 09 57.4 10 13 06 23 11 16.80 | 9 18 8 39 8 41 42 | 14 40 -17 36 15 56 | | | 845001 845001 434013 |
| 01909 WHITTIFR, CAL. | 8566 11 21 9001 11 21 | 11 56 55.4 11 59 02.30 | 7 30 36 | - 7 28 | 180 00 | 50 54 | 845301 434013 |
| O1889 ORGAN PASS-BN, N.M. O1910 WHITTIER, CAL. O1891 MAUI-BN, HAWAII O1890 NAINI TAL-BN, INDIA | 8566 11 21 9012 11 21 9006 11 21 | 11 59 22.5 14 06 33.39 22 46 05.28 | 10 17 18 7 53 48 | 53 17 12 39 | 143 00 | 35 36 | 845301 434013 434013 |
| 01894 TOKYO-BN. JAPAN | 9005 11 22 | 10 51 33.20 | 22 12 24 | 11 31 | | | 434013 |
| 01906 ALBUQUERQUE: N.M. | 0103 11 23 | 11 35 39 | | | 180 | 30 30 | 845302 |
| 01905 SHIRAZ-BN. IRAN 01898 CURACAO-BN. N.W.I. | 9008 11 24 9009 11 24 | 0 34 35.30 23 49 49.90 | 9 39 06 0 19 42 | -13 54 -11 36 | | | 434013 434013 |
| 01900 MAUI-BN, HAWAII 01899 CURACAO-BN, N.W.I. | 9012 11 26 9009 11 26 | 6 09 02•79 8 51 07•21 | 23 07 30 9 12 06 | -22 23 38 28 | | | 434013 434013 |
| 01904 MAUI-BN, HAWAII 01903 CURACAO-BN, N.W.I. | 9012 11 28 9009 11 28 | 5 45 45.48 23 00 12.46 | 0 14 00 23 30 48 | - 4 53 4 19 | | | 434013 434013 |
| 01901 TOKYO-BN, JAPAN 01902 NAINI TAL-BN, INDIA | 9005 11 29 9006 11 29 | 9 53 25.40 14 11 54.39 | 23 59 06 22 12 12 | -33 09 -25 19 | | | 434023 434023 |
| 01919 W. PALM BEACH. FLA. 01920 W. PALM BEACH. FLA. 01921 W. PALM BEACH. FLA. 01907 TOKYO-BN. JAPAN | 0016 11 30 0016 11 30 0016 11 30 9005 11 30 | 1 03 55 1 04 44 1 05 02 9 42 08•10 | 0 36 54 | -27 38 | 215 204 196 | 47 56 69 | 845301 845301 845301 434023 |
| 01911 TOKYO-BN. JAPAN 01908 NAINI TAL-BN. INDIA 01924 SHIRAZ-BN. IRAN | 9005 12 01 9006 12 01 9008 12 01 | 9 31 26.80 13 50 46.87 16 01 15.80 | | -19 24 - 5 48 - 5 51 | | | 434013 434013 434013 |
| 01914 MAUI-BN. HAWAII 01913 TOKYO-BN. JAPAN | 9012 12 02 9005 12 02 | 4 55 00•62 9 17 50•50 | 22 40 42 0 40 06 | 3 27 -20 52 | | | 434013 434013 |
| O1912 ORGAN PASS-BN, N.M. O1917 MAUI-BN, HAWAII O1915 TOKYO-BN, JAPAN O1916 NAINI TAL-BN, INDIA | 9001 12 03 9012 12 03 9005 12 03 9006 12 03 | 3 39 19.00 4 43 18.97 9 05 36.90 13 25 32.43 | 0 26 00 23 11 36 0 40 00 0 12 24 | - 1 09 11 45 -11 32 - 0 56 | | | 434013 434013 434013 434013 |
| 01927 N. CANTON, OHIO 01928 W. PALM BEACH, FLA. 01929 W. PALM BEACH, FLA. 01930 CINCINNATI, OHIO 01922 TOKYO-BN, JAPAN | 8544 12 04 0016 12 04 0016 12 04 8555 12 04 9005 12 04 | 0 14 28.4 0 15 08 0 15 26 0 16 28 8 51 56.30 | 23 38 50 1 26 24 23 43 12 | -23 00 -15 48 -18 15 | 160 140 | 78 76 | 845001 845301 845301 845001 434013 |
| O1931 W. PALM BEACH. FLA. 01932 W. PALM BEACH. FLA. 01933 W. PALM BEACH. FLA. 01934 W. PALM BEACH. FLA. 01935 ROCHESTER, N.Y. 01936 ALAMOGORDO, N.M. | 0016 12 05 0016 12 05 | 0 02 28 0 02 36 0 02 42 0 02 52 0 03 28 2 2 14 25 | 23 54 18 | -20 28 | 170 160 150 135 | 80 81 80 79 60 42 | 845301 845301 845301 845301 845001 845302 |
| 01942 ALBUQUERQUE, N.M. | 0103 12 06 | 2 01 40+5 | 21 40 00 | _ 2 84 | 180 00 | 53 48 | 845302 434013 |
| 01923 NAINI TAL-BN. INDIA 01943 ALBUQUERQUE. N.M. | 9006 12 06 0103 12 07 | 12 44 45.39 1 48 59 | 21 40 00 | - 3 54 | 180 00 | 56 12 | 845302 |
| | | | | | | | |

| OBS NO STATION 01926 TOKYO-BN. JAPAN 01925 CURACAO-BN. N.W.I. | STA NO DATE 9005 12 07 9009 12 07 | 71ME 10 30 40+20 23 27 35•69 | R. A. 22 23 12 23 24 54 | DECL. 5 40 71 14 | AZ IMUTH | ALTITUDE RANG | E INDEX 434013 434013 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|------------------------------------------------------|--------------------------|-------------------------|--------------------------------------------------------------------------------------------------|
| 01949 FT. WORTH: TEXAS 01938 TOKYO-BN: JAPAN | 0139 12 08 9005 12 08 | 1 39 27.8 10 20 14.60 | 0 20 0 03 30 | 20 00 13 28 | | | 845001 434013 |
| 01961 ALBUQUERQUE, NoMa 01968 ALBUQUERQUE, NoMa 01969 ALBUQUERQUE, NoMa 01962 ALBUQUERQUE, NoMa 01937 OLIFANTSFNTN-BN-SSAF 01940 ARGQUIFA-BN- PEPU 01940 ARGQUIFA-BN- NoWala | 0103 12 09 8534 12 09 8534 12 09 0103 12 09 9002 12 09 9007 12 09 9009 12 09 | 1 23 55.4 1 23 56.0 1 24 14.9 1 25 45.3 2 03 58.50 8 31 40.37 23 00 48.88 | 23 25 36 23 39 12 10 23 30 9 21 48 21 11 12 | 6 18 7 03 25 49 8 18 61 11 | 180 00 | 61 18 58 24 | 845302 845001 845001 845302 434013 434013 |
| 01939 ORGAN PASS-BN+ N+M+ 01973 CINCINNATI, CHIO 01970 DAYTON+ OHIO 01971 DAYTON+ OHIO 01972 DAYTON+ OHIO 01945 JUPITER-BN+ FERU 01945 AREOUIPA-BN+ PERU 01946 TOKYO-BN+ JAPAN 01947 NAINI TAL-BN+ INDIA | 9001 12 10 8555 12 10 8557 12 10 8557 12 10 8557 12 10 9010 12 10 9007 12 10 9005 12 10 9006 12 10 | 1 11 41e70 1 16 07 1 16 34e0 1 16 42e5 1 16 46e0 1 17 03e71 8 19 14e88 9 55 53e70 14 17 04e30 | 23 31 48 23 09 36 21 21 18 9 05 54 0 35 06 1 13 30 | 17 00 4 54 39 07 6 36 18 03 47 27 | 211 36 210 208 22 | 49 04 50 30 50 01 | 434013 845001 845301 845302 845301 434013 434013 434013 |
| 02040 WALNIT CREEK, CAL. 01974 CHINA LAKE, CAL. 01950 AREQUIPA-BN, PERU 01954 TOKYO-BN, JAPAN | 8553 12 11 0098 12 11 9007 12 11 9005 12 11 | 3 13 55 3 15 08•4 5 07 13•35 9 42 39•70 | 9 23 48 23 48 54 | 11 21 - 0 57 18 30 | 180 00 00 | 75 01 48 | 641002 641302 434013 434013 |
| 01957 JUPITER-BN. FLA. 01988 CHIMA LAKE, CAL. 01958 MAUI-BN. HAWAII 01955 TOKYO-BN. JAPAN 01953 SAN FERNANDO-BN. SP. | 9010 12 12 0098 12 12 9012 12 12 9005 12 12 9004 12 12 | 0 54 07.00 3 02 33.0 5 09 05.93 9 30 24.60 20 23 10.40 | 0 42 06 22 03 54 23 58 18 23 56 18 | 56 09 60 06 19 53 17 10 | 180 00 | 76 03 36 | 434013 641302 434013 434013 434013 |
| 01990 FT. WCRTH, TEXAS 01979 SACRAMENTO, CAL. 01956 TOKYO-BN, JAPAN 01952 WOOMERA-BN, AUSTR. | 0139 12 13 8517 12 13 9005 12 13 9003 12 13 | 0 36 14 2 48 41•2 9 18 33•40 18 34 15•88 | 0 37 06 8 30 12 | 21 42 27 06 | 23 29 180 00 | 27 35 64 02 | 845302 641302 434013 434013 |
| 01991 N. CANTON, OHIO 01960 JUPITER-BN. FLA. 01951 OLIFANTSFNIN-BN.S.AF 01959 MAUI-BN. HAWAII 01264 NAINI TAL-BN. INDIA | 8536 12 14 9010 12 14 9002 12 14 9012 12 14 9006 12 14 | 0 28 31 0 30 52.88 1 02 29.80 4 44 58.92 13 26 27.44 | 0 27 3 08 00 10 13 48 23 28 24 0 21 24 | 6 30 49 10 19 58 63 41 44 57 | | | 641002 434013 434013 434013 434013 |
| 01992 N. CANTON. OHIO 01993 N. CANTON. OHIO 01966 OLIFANTSFINT-BN.S.AF 02044 SACRAMENTO, CAL. 01994 CHINA LAKE. CAL. 01963 ORGAN PASS-BN. N.M. 01967 WOOMERA-BN. AUSTR. | 8536 12 15 8536 12 15 9002 12 15 8517 12 15 0098 12 15 9001 12 15 9003 12 15 | 0 15 50 0 15 55 0 50 20•11 2 23 14•7 2 24 34•0 2 28 05•30 18 10 59•68 | 0 20 30 0 23 30 10 20 24 0 57 54 9 55 06 | 7 46 7 33 17 07 33 32 15 53 | 180 00 180 00 00 | 66 37 78 27 36 | 641002 641002 434013 641302 641302 434013 |
| 02041 WALNUT CREEK. CAL. 02042 WALNUT CREEK, CAL. 01995 CHINA LAKE. CAL. 01985 SHIRAZ-BN. IRAN 01996 N. CANTON. OHIO 01997 N. CANTON. OHIO 01975 JUPITEP-BN. FLA. | 8556 12 16 8556 12 16 0098 12 16 9008 12 16 8536 12 16 8536 12 16 9010 12 16 | 2 10 22.8 2 10 59.0 2 11 49.4 15 13 39.50 23 50 22 23 50 26 23 51 44.51 | 23 38 00 0 03 30 1 39 24 0 03 00 0 05 30 1 03 30 | 17 28 17 28 40 38 9 54 9 48 50 00 | 180 00 00 | 79 00 00 | 845002 845002 641302 434013 641002 641002 434013 |
| 02066 CRGAN PASS-BN. N.M. 01977 NAINI TAL-BN. INDIA 01976 WOOMERA-BN. AUSTR. C1978 JUPITER-BN. FLA. | 9001 12 17 9006 12 17 9003 12 17 9010 12 17 | 2 02 45.40 12 47 56.76 17 46 14.14 23 38 36.11 | 0 40 18 23 39 42 9 35 48 0 27 36 | 32 36 43 07 15 44 49 20 | | | 434013 434013 434013 434013 |
| 01980 ORGAN PASS-BN, N.M. 01981 TOKYO-BN, JAPAN 01986 SHIRAZ-PN, IRAN 01987 SHIRAZ-BN, IRAN | 9001 12 18 9005 12 18 9008 12 18 9008 12 18 | 1 49 50.20 10 33 29.00 14 47 00.67 16 22 51.16 | 0 19 30 0 50 36 0 05 30 1 31 12 | 32 27 9 00 41 42 41 10 | | | 434013 434013 434013 434013 |
| 02064 SPOKANE. WASH. 02075 ALBUGUERQUE. N. M. 02045 FT. WORTH. TEXAS 02046 CINCINNATI. OHIO 02047 N. CANTON. OHIO 02048 N. CANTON. OHIO 02049 ROCHESTER. N.Y. | 8142 12 19 8534 12 19 0139 12 19 8555 12 19 8536 12 19 8536 12 19 8564 12 19 | 1 35 45 1 37 08.2 1 40 09.4 23 10 49 23 11 51 23 12 05 23 13 21.9 | 0 18 48 0 59 10 23 24 06 23 36 00 23 44 23 57 24 | 24 18 25 25 17 48 12 21 12 15 6 21 | 178 | 41 24 | 845309 845041 845002 845001 641002 641002 845001 |
| 02076 ALBUQUERQUE, N. M. 02050 FT. WORTH, TEXAS 02051 FT. WORTH, TEXAS 02051 FT. WORTH, TEXAS 02052 W. PALM BEACH, FLA. 02053 W. PALM BEACH, FLA. 02054 W. PALM BEACH, FLA. 02055 W. PALM BEACH, FLA. 01982 JUPITER-BN. FLA. 01984 OLIFANTSFNITS-BNS.AF | 8534 12 20 0139 12 20 0139 12 20 0019 12 20 0016 12 20 0016 12 20 0016 12 20 9010 12 20 9002 12 20 8553 12 20 | 1 24 17.0 1 27 23.2 1 27 29.6 1 28 34 1 28 57 1 30 09 1 31 07 1 31 33.65 2 05 04.90 3 39 53.8 | 0 08 00 0 47 45 0 52 30 0 24 48 7 40 48 1 24 | 24 18 25 10 24 40 27 26 -56 00 - 0 10 | 288 288 288 286 | 41 44 55 64 | 845041 845002 845002 845301 845301 845301 845301 434013 434023 641002 |
| 02056 CHINA LAKE, CAL. 01983 SHIRAZ-BN. IPAN 02057 W. PALM BEACH, FLA. | 0098 12 20 9008 12 20 0016 12 21 | 3 41 17.9 16 41 02.44 1 19 34 | 1 05 18 | 11 41 | 180 00 00 270 | 76 | 641302 434013 845301 |
| 01989 TOKYO-BN, JAPAN | 9005 12 21 | 9 55 35.40 | 0 33 30 | 8 45 | | | 434013 |

| OBS NO STATION | STA NO DATE | TIME | R. A. | DECL. | AZ IMUTH | ALTITUDE | RANGE INDEX |
|---------------------------------------------------------|--------------------------|----------------------------|---------------------|------------------|---------------|----------------|------------------|
| 02067 MITAKA, JAPAN | 0229 12 21 | 9 55 36.3 | | | 197 12 | 62 36 | 845301 |
| 02058 SACRAMENTO, CAL. 02000 TOKYO-BN, JAPAN | 8517 12 22 9005 12 22 | 3 14 35•1 9 41 43•70 | 23 44 00 | 12 03 | 180 00 | 50 26 | 641302 |
| 01998 NAINI TAL-BN. INDIA | 9006 12 22 | 14 04 34.15 | 0 52 48 | 18 27 | | | 434013 434013 |
| 02039 SHIRAZ-EN. IRAN | 9008 12 22 | 16 16 20.22 | 1 16 12 | 7 12 | | | 434013 |
| 02059 W. PALM BEACH, FLA. 02060 W. PALM BEACH, FLA. | 0016 12 23 0016 12 23 | 0 54 49 0 54 55 | | | 230 | 81 | 845301 845301 |
| 02061 W. PALM BEACH. FLA. | 0016 12 23 | 0 54 58 | | | 220 210 | 82 82 | 845301 |
| 01999 JUPITER-BN. FLA. | 9010 12 23 | 0 56 23.52 | 2 21 48 | 9 44 | | | 434013 |
| 02001 ORGAN PASS-BN, N.M. 02004 TOKYO-BN, JAPAN | 9001 12 23 9005 12 23 | 3 05 42•48 9 30 35•20 | 0 50 42 0 36 24 | - 3 52 6 56 | | | 434013 434013 |
| 02002 NAINI TAL-BN. INDIA | 9006 12 23 | 13 53 56.35 | 2 14 48 | 7 14 | | | 434013 |
| 02012 SHIRAZ-BN. IRAN | 9008 12 23 | 16 02 27.63 | 0 17 54 | 12 03 | | | 434013 |
| 02003 CURACAO-BN, N.W.I. | 9009 12 24 8534 12 24 | 0 46 14.43 | 1 28 18 | 45 37 | | | 434013 |
| 02007 TOKYO-BN. JAPAN | 9005 12 24 | 2 54 41.8 9 07 16.20 | 1 50 48 0 10 30 | -16 48 8 32 | | | 845041 434013 |
| 02008 TOKYO-BN. JAPAN | 9005 12 24 | 11 35 26.80 | 0 25 30 | -22 25 | | | 434013 |
| 02018 SAN FERNANDO-BN. SP. | 9004 12 24 | 20 11 02.50 | 0 27 06 | -11 29 | | | 434013 |
| 02068 MITAKA, JAPAN 02006 TOKYO-BN, JAPAN | 0229 12 25 9005 12 25 | 9 04 09•8 9 04 17•90 | 23 59 00 | 8 45 | 199 00 | 62 54 | 845301 434013 |
| 02065 SPOKANE, WASH. | 9142 12 26 | 2 21 43 | | , | 100 | | |
| 02070 MITAKA, JAPAN | 0229 12 26 | 8 51 10.4 | | | 180 199 36 | 27 62 48 | 845309 845301 |
| 02009 TOKYO-BN. JAPAN | 9005 12 26 | 9 51 18 • 00 | 23 48 06 | 8 52 | | | 434013 |
| 02069 MITAKA, JAPAN 02010 NAINI TAL-BN, INDIA | 0229 12 26 9006 12 26 | 11 10 46.0 13 13 25.06 | 0 19 48 | 14 52 | 212 36 | 22 42 | 845301 434013 |
| 02016 SHIRAZ-BN. IRAN | 9008 12 26 | 15 23 56.44 | 23 51 30 | 10 48 | | | 434013 |
| 02011 NAINI TAL-BN. INDIA 02005 SAN FERNANDO-BN. SP. | 9006 12 26 9004 12 26 | 15 31 47.32 | 0 15 30 | -21 42 | | | 434013 |
| | 9004 12 26 | 19 46 02.70 | 0 26 00 | -13 07 | | | 434013 |
| 02073 WHITTIER-D, CAL. | 8566 12 27 | 2 12 07.2 | | | 180 00 | 59 18 | 845301 |
| 02013 JUPITER-BN, FLA. 02071 MITAKA. JAPAN | 9010 12 27 0229 12 27 | 2 21 39.19 10 57 59.9 | 0 07 30 | -21 57 | 213 06 | 23 12 | 434013 845301 |
| 02017 MAINI TAL-8N+ INDIA | 9006 12 27 | 13 00 05.61 | 23 57 30 | 15 32 | 213 00 | ., | 434013 |
| 02074 WHITTIER-D. CAL. | 8566 12 28 | 1 59 07.2 | | | 180 00 | 59 30 | 845302 |
| 02014 ORGAN PASS-BN, N.M. | 9001 12 28 | 2 01 41.70 | 0 04 36 | - 3 28 | | | 434013 |
| 02015 JUPITER-BN, FLA. 02021 MAUI-BN, HAWAII | 9010 12 28 9012 12 28 | 2 10 40.69 6 26 41.23 | 0 45 24 | -30 58 - 2 46 | | | 434023 434013 |
| 02023 SAN FERNANDO-BN. SP. | 9004 12 28 | 19 19 12.80 | 23 41 30 | - 8 36 | | | 434013 |
| 02019 JUPITER-BN, FLA. 02022 CURACAO-BN, N.W.I. | 9010 12 28 9009 12 28 | 23 38 34.46 23 44 32.43 | 0 30 36 1 55 54 | 10 01 23 37 | | | 434013 |
| | | | 1 33 34 | 25 51 | | | 434013 |
| 02062 SPOKANE, WASH. 02063 SACRAMENTO, CAL. | 8142 12 29 8517 12 29 | 1 42 32.3 1 44 36.0 | | | 180 180 00 | 29 18 51 20 | 845309 641302 |
| 02020 JUPITER-BN, FLA. | 9010 12 29 | 1 58 33•41 | 0 48 42 | -33 45 | 100 00 | 31 20 | 434023 |
| 02026 MAUI-BN, HAWAII | 9012 12 29 | 6 14 42.47 | 23 57 42 | - 3 25 | | | 434013 |
| 02024 NAINI TAL-BN. INDIA 02028 WOOMERA-BN. AUSTR. | 9006 12 29 9003 12 29 | 14 52 51.73 17 35 28.03 | 23 42 30 9 49 18 | -19 06 -51 11 | | | 434013 434023 |
| 02027 SAN FERNANDO-BN. SP. | | 19 06 32 30 | 23 39 30 | - 9 24 | | | 434013 |
| 02025 CURACAO-BN, N.W.I. | 9009 12 29 | 23 30 22.92 | 0 51 24 | 27 47 | | | 434013 |
| 02029 JUPITER-BN. FLA. | 9010 12 30 | 1 44 59.51 | 0 19 24 | -28 58 | | | 434023 |
| 02036 MAUI-BN, HAWAII 02037 TCKYO-BN, JAPAN | 9012 12 30 9005 12 30 | 6 02 05•53 10 17 57•80 | 0 23 18 23 24 00 | - 9 20 -17 16 | | | 434013 434013 |
| 02072 MITAKA, JAPAN | 0229 12 30 | 19 20 01.5 | 23 24 00 | 4. 10 | 210 18 | 24 00 | 845301 |
| 02031 NAINI TAL-BN, INDIA | 9006 12 30 | 14 42 53.15 | 0 45 48 | -31 35 | | | 434023 |
| 02030 SAN FERNANDO-BN, SP. 02032 CURACAO-BN, N.W.I. | 9004 12 30 9009 12 30 | 18 52 48.10 23 18 41.23 | 23 15 06 1 26 30 | - 6 59 21 32 | | | 434013 434013 |
| 02033 JUPITER-BN. FLA. | 9010 13 31 | 1 20 25 0 | 0 20 12 | -20 25 | | | |
| 02038 MAUI-BN, HAWAII | 9010 12 31 9012 12 31 | 1 32 35.91 5 50 36.48 | 0 20 12 0 52 36 | -30 20 -17 03 | | | 434023 434013 |
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